DOCUMENT RESUME

ED 024 560

RE 001 535

By- Artley, A. Sterl
Trends and Practices in Secondary School Reading: A Report on Recent Research.
Indiana Univ., Bloomington. ERIC Clearinghouse on Reading.; International Reading Association, Newark, Delaware.
Spons Agency- Office of Education (DHEW), Washington, D.C. Bureau of Research.
Pub Date 68
Note- 143p.
Available from- International Reading Association, 6 Tyre Ave., Newark, Delaware 19711 ($3.00 to members, $3.50 to nonmembers).
EDRS Price MF-$0.75 HC Not Available from EDRS.
Descriptors- Individualized Reading, Instructional Materials, Programed Instruction, Reading Ability, Reading Achievement, Reading Development, Reading Instruction, Reading Materials, Reading Programs, *Reading Research, Reading Skills, Remedial Reading Programs, *Research Reviews (Publications), *Secondary Grades

Information from more than 180 research studies reported during the last decade is presented on (1) secondary school reading achievement, (2) status factors related to growth in reading, (3) progress of reading instruction, (4) instructional procedures, (5) student reading interests, and (6) secondary reading personnel preparation. The research suggests that a decline in reading growth, noted at the junior high level, results from the lack of systematic reading instruction beyond grade 6 and from the absence of qualified reading personnel. It points out that a student's emotional, physical, and intellectual competencies, as well as his reading purposes and communication abilities, are directly related to reading growth. The cited studies are predominately programs for the handicapped reader; these indicate that any remedial approach must be multidimensional to meet multifaceted needs. General program improvement suggestions include close integration of reading and content area material, sequential development that provides for individual needs in all areas of reading growth, and complete staff involvement. The use of a variety of reading materials and methods, both mechanical and textual, is recommended for reading instruction. More better-trained teachers and books with contemporary themes are needed. A comprehensive bibliography of studies cited is included.

Eric Crier

ED0 24560

Reading
Review
Series

TRENDS AND PRACTICES
IN SECONDARY SCHOOL READING

RE 001 535

ERIC/CRIER Reading Review Series

SERIES EDITOR, Edward G. Summers, *Indiana University*

A. STERL ARTLEY:
Trends and Practices in Secondary School Reading, 1968

RUTH STRANG:
Reading Diagnosis and Remediation, 1968

U. S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

These IRA *Research Fund Monographs are available*
from the INTERNATIONAL READING ASSOCIATION,
Six Tyre Avenue, Newark, Delaware 19711.

AN IRA RESEARCH FUND MONOGRAPH

Trends and practices in secondary school reading

A REPORT ON RECENT RESEARCH

A. Sterl Artley, University of Missouri

The ERIC Clearinghouse on Retrieval of Information and Evaluation on Reading is a joint project of the International Reading Association and Indiana University in cooperation with the Educational Resources Information Center of the U.S. Office of Education. The development of the manuscript for this volume was supported through a contract with the United States Department of Health, Education, and Welfare. Publication was made possible through a grant from the International Reading Association Research Fund.

International Reading Association Research Fund

Newark, Delaware 1968

Trends and Practices in Secondary School Reading: A Report on Recent Research was prepared pursuant to a contract with the Office of Education, U. S. Department of Health, Education and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their judgment in professional and technical matters. Points of view or opinions do not, therefore, necessarily represent official Office of Education position or policy.

CONTENTS

1. The status of reading achievement
   1. *Surveys of reading achievement*
   2. *Reading in relation to subject area achievement*

2. Factors related to continued growth in reading
   1. *Intelligence*
   2. *Sex*
   3. *Personal factors*
   4. *Purpose*
   5. *Environmental and cultural factors*
   6. *Reading competencies*
   7. *Instructional factors*
   8. *Listening ability*
   9. *Language factors*
   10. *Physical factors*

3. Programs of reading instruction
   1. *Surveys of reading programs*
   2. *Programs of reading in the content areas*
   3. *Organizational patterns*
   4. *Programs for the handicapped reader*
   5. *Programs for the able student*
   6. *Programs for miscellaneous groups*
   7. *Evaluation of reading programs*

4. Instructional procedures
   1. *Mechanical procedures*
   2. *Individualized procedures*
   3. *Programed instruction*
   4. *Procedures for increasing rate of reading*
   5. *Miscellaneous procedures*
   6. *Readability of instructional materials*

5. Reading interests
   1. *Reading habits and interests of young people*
   2. *Reading habits and interests in relation to other factors*

6. Personnel

7. Summaries of research on secondary school reading

8. Summary

References

PREFACE

The creation of ERIC (Educational Resources Information Center) and its 18 decentralized information centers has been documented in various publications of the USOE and through the information retrieval centers now in operation around the country. The reader is referred to publications of the U. S. Office and the Clearinghouses for details of how ERIC began, how it has gone about its work, where it stands at the moment, and future plans being laid for information retrieval and analysis activities in education. A list of the eighteen current ERIC information centers is supplied at the end of this preface. The interested reader can contact any of these centers for detailed information on ERIC activities.

One idea that has remained paramount throughout the planning and development of ERIC is the concept that an information facility developed to serve the broad needs of education should almost immediately become involved in the analysis and interpretation of information as well as its collection, organization, and dissemination. Herein lies one of the strengths of the decentralized as opposed to the centralized information system. In such a system possibilities for interaction between the professional groups related to the various domains of education and the relevant data are necessarily increased.

Information analysis can take place on a broad continuum ranging from comprehensive reviews of the state of the knowledge in a given area to bibliographies of citations on various topics. *The Reading Review Series* of the ERIC Clearinghouse on Retrieval of Information and Evaluation on Reading has been created to disseminate its information analysis products. Four genres of documents appear in the series. The first type includes bibliographies with descriptive abstracts in areas of general interest. The second type consists of bibliographies of citations, or citations and abstracts, developed on more specific topics in reading. The third type provides short, interpretive papers which analyze specific topics in reading using the existing information collection. The final genre includes comprehensive state-of-the-art monographs which critically examine given topics in reading over an extended period of time. ERIC/CRIER is pleased to publish A. Sterl Artley's *Trends and Practices in Secondary School Reading: A Report on Recent Research* as the first of the comprehensive information analysis monographs to appear in the *Reading Review Series.*

During the initial phases of ERIC/CRIER, considerable thought was given to timely topics and areas in reading instruction where critical analysis of the available research would indicate accomplishments, trends, and new directions. The Advisory Board of the Clearinghouse discussed a number of possible topics at the Fall 1966 meeting. Several topics were consistently mentioned as possible state-of-the-art papers and a number of these have been commissioned during the first contract period. Analysis of the transcripts of the initial Advisory Board meeting revealed one problem which received almost unanimous nomination as to its timeliness and importance—reading instruction beyond the elementary school level

In considering a qualified authority in secondary reading to develop the monograph, the name of A. Sterl Artley was prominent in the literature in this field and was repeatedly suggested by colleagues and the Advisory Board. Dr. Artley was contacted and agreed to undertake to write for ERIC/CRIER a monograph which would attempt to explore trends and practices in secondary reading in light of research reported in the literature covering approximately a ten year span. He did yeoman work in developing the monograph considering the time limitations the Clearinghouse was forced to adhere to for the first paper. Such a venture was possible only because of the ready, extensive collection of research materials existing in the Clearinghouse. To anyone familiar with the field of reading and language instruction, it takes no more than a glance at the Table of Contents and the listing of references to realize the extent of Artley's analysis and the value of his contribution. He systematically organizes, reports, and analyzes the research under seven broad topics. The classification alone is a considerable contribution. In many instances, the author can only lightly report the content of studies or briefly suggest possible applications and implications because of space limitations. Most of the studies reported are available in the published literature and the interested reader should have little difficulty in locating pertinent reports for his own perusal and application. The review should have wide application and the summary section in particular presents guidelines useful in implementing reading instruction beyond the elementary school grades.

At times Artley raises questions which have only partial answers or no answers at all as indicated by the available research. It would have been simpler to report what is known definitively and substantiated by the research evidence. This would have produced a monograph considerably smaller in size. However, one of the valuable contributions of Artley's work is the identification of areas for further research, the specification of possible alternatives, and the delineation of topics where assumptions, although posed, still need to be put to the test. It is hoped the review evokes a sense of the complexity of the need in secondary reading research and the stimulation for further study and discussion as to how, particularly at leadership levels, we most effectively can develop the creative accommodation which will insure effective reading instruction throughout the total length of a student's schooling.

Edward G. Summers
Project Director
ERIC/CRIER

THE EIGHTEEN CLEARINGHOUSES IN THE ERIC SYSTEM

ADULT EDUCATION
Syracuse University
107 Roney Lane
Syracuse, N. Y. 13210

COUNSELING & PERSONNEL SERVICES
Services Information Center
611 Church St.
Ann Arbor, Michigan 48104

URBAN DISADVANTAGED
Teachers College
Columbia University
New York, N. Y. 10027

EARLY CHILDHOOD EDUCATION
University of Illinois
805 West Pennsylvania Ave.
Urbana, Ill. 61801

EDUCATIONAL ADMINISTRATION
University of Oregon
Eugene, Oregon 97403

EDUCATIONAL FACILITIES
University of Wisconsin
606 State St.
Madison, Wis. 53703

EDUCATIONAL MEDIA & TECHNOLOGY
Institute for Communication Research
Stanford University
Palo Alto, Calif. 94305

EXCEPTIONAL CHILDREN
National Education Association
1201 16th St., N.W.
Washington, D. C. 20036

JUNIOR COLLEGE INFORMATION
University of California at Los Angeles
405 Hilgard Ave.
Los Angeles, Calif. 90024

LIBRARY & INFORMATION SCIENCES
University of Minnesota
2122 Riverside Ave.
Minneapolis, Minn. 55404

LINGUISTICS
Center for Applied Linguistics
1717 Massachusetts Ave., N.W.
Washington, D. C. 20036

READING
Indiana University
200 Pine Hall
Bloomington, Ind. 47401

RURAL EDUCATION & SMALL SCHOOLS
Box AP, University Park Branch
New Mexico State University
Las Cruces, N. Mex. 88001

SCIENCE EDUCATION
Ohio State University
1460 West Lane Ave.
Columbus, Ohio 43221

TEACHER EDUCATION
1156 15th Street, N.W.
Washington, D. C. 20005

TEACHING OF ENGLISH
National Council of Teachers of English
508 South Sixth St.
Champaign, Ill. 61820

TEACHING OF FOREIGN LANGUAGES
Modern Language Assoc. of America
62 Fifth Ave.
New York, N. Y. 10011

VOCATIONAL & TECHNICAL EDUCATION
Ohio State University
980 Kinnear Road
Columbus, Ohio 43212

INTRODUCTION

One of the important functions of ERIC/CRIER, in addition to serving as a clearinghouse for information on reading, is to generate summary reports on significant topics in the field of reading and make them readily available to interested consumers. In few areas is the need for this kind of service greater than in reading. As one looks at the number of bibliographies of published articles and studies, reports of government and private agency-sponsored research, the volumes of papers presented at conferences, institutes, and workshops, and the collections of annotations of doctoral studies, it is evident that in the reading area, writers and researchers have been particularly prolific. It is literally impossible for one even to be aware of all that is being written, to say nothing about reading and assimilating it. The following summary of research in secondary reading attempts to bring together in a condensed manner relevant research and periodical literature that have been published largely over the last decade, thus making readily available findings and conclusions having practical value to the consumer.

The basic bibliographic sources of material were the Gray *Summaries of Investigations Relating to Reading,* and the Robinson, *et al. Summaries of Investigations Relating to Reading*. In addition, certain relevant articles were selected from the several *Proceedings of the International Reading Association.* It should be pointed out here that the writer fully appreciates the services of ERIC/CRIER as copies of the majority of the research reports and articles were supplied through the Clearinghouse.

The studies included are not all of equal merit. Some are action studies and reports of classroom experiments. These give helpful suggestions and informative findings as well as clues that might be followed in more sophisticated studies. Others are carefully designed and executed researches that provide the bases for valid generalizations concerning practices and trends in secondary reading. In each case it was the writer's intent to give pertinent information about such things as the procedures used and the number and kinds of subjects involved, thus giving the reader a basis for deciding for himself the worth of the study for his particular purpose.

Finally, to facilitate the use of the summary, the studies were grouped into broad categories and, within each category, grouped again by the specific nature of the study. However, frequently a given study failed to fit into a neat classification scheme. As a result, a study reported in one area might well have been reported in another.

1. *The status of reading achievement*

It seems futile to talk about reading on the secondary level without knowing something of the reading situation that exists either on an area- or state-wide level or in a particular school. The types of programs to institute, the points of emphasis to give, and even the kinds of materials to use are conditioned by the status of the reading situation as found in the type of unit with which one is concerned. Only a few status studies of secondary school reading have been reported during the last decade other than those on the local level and, even on that level, there was a paucity.

1.*1* *Surveys of reading achievement*

Ramsey (1963) reported a state-wide study of the status of reading in Kentucky. This study, done with pupils in the fourth and eighth grades, dealt with a population representative of over half of the total public school enrollment in those grades. Pupils' fall and spring scores on the California and Metropolitan Achievement tests were compared with national norms. With exception of the spring fourth-grade test results, the differences between the obtained means and the national norms were all in favor of the national norms. On the eighth-grade level, the difference was .65 of a grade in the fall and .55 in the spring. Ramsey concluded that although the reading program at the elementary level produced satisfactory results when compared with national norms, the eighth-grade lag in achievement was likely to produce greater than average difficulty for many students in high school. This study presented a strong argument for continued reading instruction on the secondary school level.

Another Kentucky study by Peyton and Below (1965) emphasized the need for organized reading instruction in the secondary schools of that state. Without a doubt studies in other states would yield findings quite similar. In this study, the investigators examined the scores of 3250 students in grades nine, ten, and eleven on the Advanced California Achievement Test and found that 34 per cent of the ninth grade, 51 per cent of the tenth grade, and 39 per cent of the eleventh grade were reading one year or more below the norm for their grade. It must be pointed out, however, that these figures merely indicate the per cent of students achieving below a given grade norm, not the per cent achieving on a level below their capacity for achievement.

Peyton and Below also prepared a questionnaire concerning the need for various types of reading programs in the state and secured results from 95 high school principals. The returns indicated that while 95 per cent of the respondents felt the need for a developmental reading program, 93 per cent for a corrective, 70 per cent for a remedial, and 51 per cent for all three types of programs, 47 per cent indicated having no program of any type. When asked what deterred them from instituting a reading program, the principals stated that their greatest problem was one of securing and keeping qualified teachers. The next was financing.

With respect to the problem of financing, Peyton and Below pointed out that a good program need not be expensive, for one does not require expensive equipment and mechanical devices. They added: "In the judgment of the writers, a competent teacher with proper diagnostic tests, a minimum of materials, and no gadgetry at all, can provide reading instruction which is gratifyingly effective."

A very comprehensive state-wide survey of the reading situation in Texas was reported by Thornton (1957). Based on 120 returns from those responsible for programs within the state, results showed only 23 per cent as having a developmental reading program, which was defined as "organized training in the improvement of reading skills for the nonremedial reader." Those not having a program were asked to indicate on a scale

(0 - 100 per cent) the extent to which they would favor having one. Forty-seven per cent of those making a response indicated that they would be "completely in favor" of some type of program. Only four respondents indicated that they were less than fifty per cent in favor. The reasons given most frequently for not having a program were lack of competent teachers, lack of time in the curriculum, and inadequate budget. Only two indicated, "no apparent need." In 10 of the 24 programs in operation, 6 covered all grades from nine through twelve, 6 were conducted in two grades [usually ten to eleven] and 6 in one grade [usually grade nine]. The remaining programs were held for a period of time less than one year. In a preponderance of situations, the course was available to "some" rather than "all" students.

Several other findings grew out of Thornton's study. One was that a single teacher usually carried the entire responsibility for the program, that there was only one chance in three that she had any special training for her work, and that the chances were negligible that she did any professional reading on the subject. Thornton also added that some kind of mechanical aid was found in most of the programs, its availability "determined by the size of the budget rather than a conviction of its value."

On a local level, Young (1956) analyzed the achievement status in reading of samples of pupils in grades four and seven (entering grade eight) in Edmonton, Alberta. Young compared their mean achievement scores on the California Reading Test with grade norms and found that, in grade seven, the pupils in the Edmonton sample exceeded the test norms by 1.78 raw score points in vocabulary, .68 in comprehension, and 2.45 in total reading. No indication was given as to whether these differences were statistically significant. Within each area studied, the range of achievement, of course, was wide. In total reading, for example, it was from below grade four to above eleven. Young also indicated that a comparison of the achievement of the grade four with the grade seven pupils, with respect to all three reading areas measured, revealed that although the mean achievement scores on both levels exceeded the national norms, the margin of superiority was less for the seventh graders. This finding is consistent with Ramsey's findings in the Kentucky survey.

Cooper (1965) compared the reading achievement of Negro and white children in a wide sampling of public schools of Georgia. Data were obtained from the California Achievement Test administered to over 30,000 children in grades four through twelve in both public and independent school districts. Using the mid-year achievement level as the point of reference, the white children excelled the Negro in both vocabulary and comprehension on all grade levels. In both areas, too, the differential was greatest in grade eleven, where the white children excelled the Negro by 4.2 grade levels in vocabulary and 3.3 grades in comprehension. No reasons were indicated for the differential between the two groups of children.

Cooper also pointed out that the data indicated that with both Negro and white children a lag between grade norms and mean achievement scores was evident beginning in grade four with the Negro children and beginning in grade seven with the white children. In grade four, mean achievement in comprehension fell behind the grade norm by 1.2 grade levels and, by grade twelve, it was 5.3 grade levels. With the white children in grade seven the differential was 0.2 of a grade and, by grade twelve, it was 2.2. Cooper indicated that the increase in achievement lag with each successive grade level was a serious indictment of the reading program carried out in the upper grades and high school, which undoubtedly was accounted for, in part, by the fact that teachers at each successive grade level gave less and less emphasis to reading instruction.

Curry and Hughes (1961) made several interesting comparisons between measured reading achievement of a group of tenth-grade students and their potential for achievement when factors such as age, grade, and mental ability were considered. Such comparisons are useful in assessing the status of reading in a school or grade, for it is more important to know how children are achieving in relation to their potential for achievement than how they are achieving in terms of their grade in school.

Working with over 600 students, Curry and Hughes divided them into three groups according to intelligence: above-average (mean I.Q.—115); average (mean I.Q.—99.5); below-average (mean I.Q.—84.3). Their measured reading achievement (California Achievement Test) was then compared with their mental age-grade levels and their anticipated grade placement. As one would expect, a straight comparison between reading achievement and school grade showed each mental ability group achieving in proportion to its mental level. The above-average group was 3.3 grade levels above the norm for the grade; the average group, 1.1 grades above; and the below-average group, 0.7 grade below.

When comparisons were made between reading grade placement and mental grade placement, the above-average group achieved 0.4 of a grade below its mental grade level, while the average and below-average groups achieved 0.8 and 1.2 grades above their mental grade. In other words, the reading program seemed to be geared slightly in favor of the average and below-average groups. When comparisons were made between reading grade and anticipated grade placement which considered age and school grade as well as mental ability, the data gave a slightly different picture. All three ability groups achieved considerably above expectancy in both reading comprehension and vocabulary. Curry and Hughes made no statement as to which of the two expectancy criteria could be considered the more valid. They did point out, however, the fact that in assessing the reading status of a group, regardless of its size, it is important to take into consideration the criterion against which achievement is being compared.

A national study of high school English programs, conducted by Applebee (1966), sheds some light upon the status of reading instruction in the United States. As a result of a two and one-half year survey of English programs conducted under the joint sponsorship of the University of Illinois and the National Council of Teachers of English, Applebee showed that English class time was apportioned in percentages as follows: literature instruction, 52.2; language, 13.5; composition, 15.7;

speech, 4.9; and reading, 4.5. Based on the 32,000 minutes of class observation, reading instruction received a very small proportion of instructional time. Applebee contended that no single system or combination of instructional innovations could substitute for the work of an able, imaginative English teacher. With more mechanical devices it seems distinctly possible, Applebee said, for teachers " . . . to get so far removed from their students that they know little more of them than whatever can be punched into an IBM card, a clear danger of automated English instruction."

1.2 *Reading in relation to subject area achievement*

Several reports dealt with the relation of various language abilities, including reading, to achievement in certain academic areas in high school. For example, Curry (1956) studied the effect of reading instruction on achievement in seventh grade arithmetic. For a period of one semester in math classes, forty minutes weekly were used for reading instruction using largely the Gates-Peardon Exercises. At the end of the semester, experimental and control groups were compared on the basis of results obtained on the Traxler Silent Reading Test and the Municipal Arithmetic Test. Although differences between the groups in both reading and arithmetic favored the experimental group, they lacked significance at either the .01 or the .05 levels. It would have been interesting to see what effect the reading instruction would have had on arithmetic achievement had the instruction been more closely related to the kinds of reading competencies demanded in this specialized area.

The importance of reading and other language factors in determining promotional status in grades seven and eight was demonstrated by Holmes and Finley (1957). Correlating the results on the several tests comprising the California Achievement Test Battery with a deviation score representing the difference between a student's actual grade placement and the grade he should have been in according to his age, in both grades studied, the language factor—comprehension, vocabulary, spelling, and, to a slight degree, the mechanics of grammar—were found to be those that contributed chiefly to promotional status. Surprisingly, achievement in the quantitative areas appeared to play almost no role in determining whether or not a student would be retarded, promoted, or accelerated.

Krantz (1957) was interested in the reading abilities and skills that would be predictive of later achievement in the content area. The study population consisted of two heterogeneous groups of seventh graders: one group was tested in grade seven and again in grade eleven; the second group was tested in grade seven and again in grade nine. All students were tested with the California Intelligence Test (non-language) and the Iowa Tests of Educational Development, thus giving sub-test scores in thirteen different areas of achievement, including comprehension, vocabulary, skills in the use of the dictionary, reference materials, arithmetic skills, etc. These sub-test scores were then correlated with the scores of the nine separate tests of the Iowa Tests of Educational Development which include ability to interpret reading material in social studies, natural science, literary materials, qualitative thinking and the like. Based upon a correlational analysis, predictions based upon the seventh grade measures were made between each dependent and independent variable for grades nine and eleven. The study yielded a number of interesting conclusions, among which were: *1*] predictions from grades seven to eleven were about as accurate as those from seven to nine, *2*] reading vocabulary was more closely related to achievement in all content areas on the ninth-grade level than any other measured ability, *3*] reading comprehension was more closely related to content area achievement in grade eleven than any other measure. When study skills were considered separately as predictors, use of the dictionary and the reading of graphs, charts, and tables appeared the most useful. In general, total study skills, reading comprehension, and vocabulary correlated highest with measured subject area achievement in both ninth and eleventh grades. Krantz also showed that each area of subject matter did require the use of certain skills more or less specialized to that area and, as a result, indicated that the development of reading ability specific to a given content area was highly important to pupil achievement.

2. *Factors related to continued growth in reading*

2.1 *Intelligence*

A considerable number of studies and investigations dealing with the influence of various factors—psychological, sociological, physical, and educational—on reading ability on the secondary level have been reported in the last decade. An area that has intrigued investigators for years has been that of intelligence. Using 800 ninth graders, Hage and Stroud (1959) investigated the relation between reading achievement and verbal and non-verbal intelligence as measured by the Lorge-Thorndike Intelligence Test. Reading ability was assessed with the Pressey Reading Rate and Comprehension Test and the Iowa Every-Pupil Tests of Basic Skills. Although reading rate and comprehension correlated significantly with both verbal and non-verbal scores, they correlated higher with verbal scores. Furthermore, it was reported that at all levels of reading proficiency, verbal intelligence scores gave a better prediction of academic achievement than did non-verbal scores.

Harootunian (1966) reported a study designed to determine the possible influence of a number of intellectual variables on reading performance. Subjects were 513 seventh and eighth grade students. The total I.Q. on the California Test of Mental Maturity as well as scores on 14 other intellectual variables including word fluency, ideational fluency, conceptual foresight, closure, and judgment or critical thinking were analyzed in relation to total reading achievement scores on either the California Achievement Test or the Iowa Every-Pupil Tests of Basic Skills. The coefficient of multiple correlation between reading and the combined variables was .781. The "Missing Facts" sub-test, as a measure of the ability to see and make implications, yielded the highest beta weight in relation to reading ability. In fact, the judgment and evaluation cluster of variables appeared to be most crucial to reading. Although intelligence (CTMM) bore a substantial relation to reading, its beta coefficient did not indicate it as the dominant variable.

Harootunian concluded that his study showed that several of his variables were significantly related to reading, and that these variables were not being measured by the traditional intelligence test. "Taken in their entirety," Harootunian stated, "the data strongly support the position that such factors as judgment, evaluation, and conceptual foresight, have much in common with reading ability."

In order to confirm the often expressed contention that intelligence tests do not yield valid scores for children with reading handicaps, the Plattors and the Sherwoods (1959) conducted a study involving the comparison of the verbal and non-verbal intelligence (Pintner) of retarded readers with that of pupils having no reading retardation. The researchers hypothesized: "If a discrepancy score is defined as excess of non-verbal I.Q. over verbal I.Q., and if reading ability is related to the verbal score but not to the non-verbal score, there should be a significant difference between the mean discrepancy score of retarded readers and the mean discrepancy score of on-grade readers." To this end, the discrepancy scores of a group of 266 pupils in grade seven, reading two years or more below grade level, were compared with those of 43 pupils who were reading on-grade. The mean I.Q.'s for the retarded group were 74.5 and 84.5 on the verbal and non-language tests respectively, giving a discrepancy score of + 10.0. The mean I.Q.'s for the "on-grade" group were 113.6 and 105.1 for the verbal and non-language tests, yielding a discrepancy score of –8.5. These data, the writers contended, strongly supported the basic hypothesis of the study that "low intelligence quotients obtained by retarded readers may reflect their reading retardation rather than basic inability to learn." They suggested that non-language tests should be used when measuring the capacity level of retarded readers.

Similar findings were reported by McDonald (1964), who used the verbal and performance sub-tests of the Wechsler Intelligence Scales for Children. McDonald reported the results of the WISC for sixty disabled readers at the high school level as follows: Verbal I.Q., 95.8; Performance I.Q., 105.3. This difference of 9.5 points between the two scales was statistically significant and tended to confirm the findings of the Plattors-Sherwoods study. McDonald proceeded to examine the WISC sub-test scores in relation to their deviations from the mean scaled scores and found that, while the handicapped readers showed significant strength in non-verbal tasks, they did poorly in tasks requiring concentration and attention, fluency of perceptual motor performance, and information.

Chansky (1963) studied the effect of intelligence and age on changes in reading comprehension and vocabulary. A program of corrective instruction was given to a group of 41 retarded readers with chronological ages ranging from 8 to 14 and with I.Q.'s between 82 and 118. The changes in reading resulting from corrective instruction ranged from − 2 to + 33 months. These changes were then correlated with chronological age and intelligence. Younger children tended to respond better to corrective instruction than the older ones and, when the effect of chronological age was partialled out, the relation between intelligence and reading improvement became nil. Chansky concluded that no empirical evidence was found to support the belief that learners with high intelligence made greater progress in corrective reading instruction than those with lower intelligence. The study also implies that the younger the age at which one can work with children with reading handicaps, the greater the chances will be for improvement.

Spaights (1965) reported an interesting study on the ability of children at various levels of intelligence to make a reliable assessment of their achievement in reading, arithmetic, and language. To eighty seventh graders, Spaights administered the California Achievement Test and an investigator designed "How I Rate Academically" scale as a measure of perceived achievement. Coefficients of correlation were derived between measured and perceived achievement for boys and girls and for four levels of intelligence.

It was found that bright pupils and those with above-average intelligence tended to over-estimate their achievement status and were less accurate than their less intelligent peers. All students predicted their reading status more accurately than they did their arithmetic or language arts achievement levels. Spaights attributed this to the facility with which pupils can obtain the grade level of reading material. There was no difference in the ability to predict achievement level that could be attributed to sex.

To identify the factors that may be related to reading difficulties in children of upper junior high school age, Hunt and Sheldon (1950) compared the characteristics of 19 good with 17 poor ninth grade readers. The subjects were selected by their teachers on the basis of reading test results, intelligence (above 90 I.Q., and teacher judgment. Upon selection, they were administered diagnostic reading tests, tests of personality, intelligence, and vision. An analysis of the results of the reading and intelligence tests showed differences between the two groups significant at the .01 level.

Next, the results of the intelligence tests were converted into grade equivalents, yielding the finding that the good readers approximated a mean reading potential level equivalent to that of college freshmen, while the average of the group of poor readers was grade nine. In terms of actual reading level, the mean scores of the high group were at the twelfth-grade level, while the average scores of the low group were at the seventh grade level. For these ninth graders, the full range in reading ability and intelligence was from twelve to thirteen years. The children in either group were not actually reading up to the level of their potential, although the good readers were closer to it than the poor ones. High school teachers, Hunt and Sheldon stressed, must realize that "much of their frustration is derived from attempting to teach forty pupils as if all the children were able to perform at the same level." Certainly this study, which could be duplicated in schools and classrooms throughout the country, shows that instruction geared to any one level is appropriate for only a fractional part of the class.

2.2 *Sex*

Sex is another factor studied in its relation to reading achievement. Because of a higher level of achievement among girls, sex should be a differential in the age at which boys should be admitted into the first grade to give them chances more nearly equal to those of girls. To investigate this question more thoroughly, Clark (1959) undertook a comprehensive study which attempted to overcome some of the limitations of earlier studies. Using several different measures of mental ability as well as achievement, sex differences were studied at three grade levels—three, five, and eight. At random, a second stage sample was drawn from a total population of over 69,000 children representative of the total pupil enrollment in the United States at each of the grade levels studied. Finally statistical controls were used in analyzing data so that the influences of chronological age and total mental ability were eliminated in assessing the differences between boys and girls. Differences in achievement were found for the areas of reading vocabulary and comprehension, arithmetic reasoning and fundamentals, mechanics of English, and spelling. At the third-grade level, there were no significant differences between boys and girls in any of the areas measured with the exception of spelling, where the 0.4 of a grade difference in favor of the girls was significant at the .05 level. At the fifth-grade level, the only differences of significance between the groups were in the areas of mechanics of English and spelling, where grade level differences of 0.7 and 0.6, respectively, in favor of the girls were significant at the .01 and .05 levels. On the eighth-grade level, differences existed between the groups again in favor of the girls in arithmetic fundamentals, mechanics of English, and spelling. The mean grade level differences in these three areas of 0.7, 1.0, and 1.1 were significant at the .05, .001, and .001 levels, respectively.

Clark concluded that, when chronological age and mental age were controlled, there was no basic difference in the performance of boys and girls in reading and arithmetic with the exception of arithmetic fundamentals on the eighth-grade level. If differences are found in achievement between boys and girls, Clark wrote, "we must look toward the instructional materials area, toward interests, and toward other educational factors" for possible explanations.

Findings similar to those of Clark were secured by Sinks and Powell (1965) who investigated intelligence and sex as factors in differentiating reading achievement levels for children in grades four through eight. Using I.Q.'s from the California Test of Mental Maturity, pupils were classified into five levels of intelligence and, within each category, pupils were classified as under-achievers, average-achievers, or over-achievers in reading on the basis of the California Reading Test.

From detailed comparisons between intelligence categories, reading levels, and sex, the investigators concluded that "no generality of relationship as to reading achievement with respect to reading vocabulary and reading comprehension may be made on the basis of intelligence and sex for the population of this study." Studies such as this lead one to generalize that, in implementing an instructional program, one has to take into consideration the full gamut of individual differences rather than assume that achievement differences are the result of either sex or intelligence.

Pauk (1960) approached the question of sex as a factor in reading achievement by asking whether existing reading tests were equally valid for both boys and girls. More definitely, Pauk was interested in exploring the possibility that there might be specific competencies or other measurable factors not assessed by reading tests that differentiated boys from girls classified as below- or above-average in reading achievement.

Three hundred ninth graders were administered the Cooperative English Test, C1: Reading Comprehension. Excluding the middle range of the distribution he divided the students into four groups: above-average boys and girls, and below-average boys and girls. To these students, 28 tests and sub-tests including personality, study habits, numerical ability, abstract reasoning, spelling, etc., were administered. An analysis of data showed that the language-type tests contributed about eighty per cent of the total battery differentiating good from poor girl readers, but only 37 per cent in differentiating between the two levels of boy readers. On the other hand, the Abstract Reasoning and Numerical Abilities tests contributed 43 per cent to the total battery in differentiating between above- and below-average boy readers, and only 12 per cent for girls. In other words, the factors that differentiated good from poor girl readers were not necessarily the same as those that differentiated the good and poor boy readers. The study implied that scores on a general test of reading achievement may occlude significant information with respect to specific groups of children.

2.3 *Personal factors*

Included in this section is a group of investigations concerned with the relationships between reading achievement and a variety of personal factors: personality, personal adjustment, motivation or purpose, mental "set," etc. Scarborough, Hindsman, and Hanna (1961) studied the connection between a student's level of anxiety and his performance in the communications area versus his performance in areas such as social studies or science. One hundred sixty-two seventh graders, selected on the basis of sex, intelligence, and anxiety level (Castenada Anxiety Scale), were subjects. The analysis of data showed that, in general, children of high intelligence with an average or high level of anxiety made significantly higher reading scores than did those of low anxiety. There appeared to be no significant interaction involving anxiety for the other learning areas studied.

The fact that children with high I.Q's earned higher scores in reading and language under average or high anxiety caused the writers to hypothesize that, for the more able children, "language arts may serve as an adjustive medium for reduction of residual anxiety." Furthermore, because of the prestige and practical values attached to reading and language, children under pressure to succeed show a stronger achievement drive and greater anxiety concerning their achievement in these areas. The study also suggests that the relationship between anxiety level and language arts performance might be more predictable for children of average or high intelligence "since they are more able to perceive the social values for such learning."

Henderson, Long, and Ziller (1965) reported a study of several factors assumed to be components of self-concept and their relation to reading retardation. It was hypothesized that years of failure and derogation would be reflected in the handicapped reader's unfavorable perception of himself. Accordingly, 48 children, having chronological ages of 7 to 14 and retarded in reading from one to six years, were compared with a like number of successful readers. Their performance was then assessed on certain non-verbal tasks, assumed to be measures of self-perception. These were indicated as differentiation, esteem, and individualism.

Comparisons between the groups of handicapped and successful readers indicated that the handicapped group was characterized by a high degree of dependency. Although no assumption of causality was made, the investigators believed that the feeling of dependency would be disruptive to reading progress since "information search, evaluation, decision making, and other cognitive processes involved in the reading process are so clearly an individual act." They recommended that the rehabilitation procedures used in dealing with handicapped readers include activities designed to build self-reliance, thus reducing the dependence of these children on others and permitting them to deal more effectively with printed material.

The effect of a prolonged history of reading failure on the attitudes of junior high school students was the basis of another study reported by Paulo (1962). An author-constructed projective measure was administered to two groups of ten students each. One group was composed of "able" readers having I.Q's of 90-110 and achieving at or above grade level in reading; the other was a group of "disabled" readers with similar I.Q.'s, but they were two or more years retarded in reading.

The projective measure was designed to involve the students in such a manner as to evoke their feelings and attitudes about reading and school. On the basis of the school records and interviews, Paulo concluded that the failure pattern of the disabled group was a long-standing one, originating, in most cases, when the children were in the first grade. Furthermore, the prolonged period of failure had had a "markedly negative" effect on the pupils' attitudes so that by the time they were of junior high school age, the negative attitude toward reading was firmly fixed as an integral part of their total personality.

2.4 *Purpose*

The relation of motivation, purpose, or mental set to reading achievement represented another interesting area of investigation. The effects of purpose on the reading of expository material in mathematics was investigated by Troxel (1962). More particularly, Troxel wished to determine the relationships between measures of arithmetic achievement, general reading ability, and the ability to read expository mathematics material for two different purposes. Using eighth graders as subjects, Troxel administered the Iowa Silent Reading and the reading section of the California Achievement tests as measures of general reading ability, and the arithmetic section of the California Achievement tests as the measure of arithmetic achievement. To matched groups of these students, an author-constructed test designed to measure two kinds of mathematics reading ability—to answer specific questions over material read and to select the main idea—was administered. Rates for reading for each purpose were also checked.

The measure of general reading ability was found to correlate higher with the measure obtained from reading mathematics content to find the main idea, than that to answer a specific question. Troxel also reported that the ability to read expository mathematics material for either of the two purposes bore only a moderate relation to mathematics achievement of the type measured by the California test, the coefficients of correlation for the two purposes being .65 and .61, respectively. Apparently the two reading purposes studied are not the ones that make a major contribution to arithmetic achievement.

The most recent and possibly the most comprehensive piece of research dealing with reading purposes is that of Helen K. Smith (1966) who was concerned with students' ability to identify appropriate reading purposes from the nature of the content, to comprehend material, and to make necessary reading adjustments in the light of the reading purpose. Subjects were ninth graders from a suburban Chicago high school. The experimental group consisted of 14 classes, totaling 204 students; the control group consisted of 15 classes totaling 307 students. From these two sets of classes, groups of experimental and control subjects were, in turn, selected. These groups, 62 students in each, were selected on the basis of their low scores on the two parts of the Test of Purpose, described below. All final comparisons were made between the experimental and control classes and experimental and control subjects.

All students were pre- and post-tested with the Cooperative English Test: Reading Comprehension, and a "Test of Purpose" developed by the researcher which contained two parts: Part I, to assess the ability of students to identify reading purposes for which a given selection should be read; and Part II, to determine the ability to comprehend passages for a pre-stated purpose and to indicate how the selection was read.

Over a period of a year, the experimental students were instructed in reading for various purposes through their regular English classes. Twelve specific purposes were identified for instruction, among which were: anticipation of outcome, sensing cause and effect, relationships, securing main ideas, details, generalizations, and sequence of ideas. Instructional materials were prepared for use in the experimental classes, while, in the control classes, no direct instruction was given in reading for different purposes except as teachers would ordinarily provide it in the course of their regular instruction.

Comparisons made at the end of the experimental period indicated that the comparisons between the experimental and control classes were much more significant than those between the smaller groups of experimental and control subjects. As a result of the instruction given in the experimental classes, the students were better able to identify appropriate purposes for reading, to read significantly better for the purposes studied, and to comprehend on a higher level than the students in the control classes. On the other hand, a comparison between the 62 experimental and control subjects, those identified as scoring low on the "Test of Purpose" to begin with, showed that the experimental subjects did not read significantly better than the control subjects for the 12 purposes identified, nor was there a difference between the groups in the level of comprehension. The experimental subjects, however, were able to identify appropriate purposes for reading significantly better than the controls.

Smith concluded that well-planned assignments should be made in which students either are given reading purposes or are given direct instruction and guidance in setting their own purposes. Moreover, it was recommended that instruction in purposeful reading should be given both below and above the ninth grade, the grade in which this research was carried out.

2.5 *Environmental and cultural factors*

Within the last decade a great deal of study has gone into the relationship between school achievement and cultural and environmental factors on all educational levels. Several studies have been reported dealing with the relationships among students of secondary school age.

To discount the contention that handicapped readers are usually dull and come from the lower socio-economic levels, in England Lovell and Woolsey (1964) tested 426 fourteen and fifteen year-old children, classified as "backward readers," with the Watts-Vernon Reading Test and the N.F.E.R. Non-Verbal Reasoning Test No. 3. Forty-seven per cent of these children were found to have scores that classified them as average or higher in non-verbal reasoning ability. With respect to social class, the authors wrote, ". . . nothing has come out of these surveys to contradict the well attested fact that children from the lower social classes tend to do less well at school work than those from higher social classes." But, they added "While social class has a 'down-pulling' effect on school performance generally, it does not, in itself, appear to be the cause of severe reading backwardness."

Kelly, North, and Zingle (1965) investigated the influence of broken homes on school attendance, reading achievement, and behavior problems. From 886 seventh- and eighth-grade pupils attending Alberta high schools, 131 were found to be from broken homes. These pupils were then compared with a like number from intact homes.

A comparison of the mean achievement in reading of children from the two types of home situations indicated no significant difference. However, a study of the time at which the home break-up occurred indicated that those coming from homes broken while the children were in grades one to three performed lowest in reading achievement. There was some indication also that children who came from father-absent homes did less well in reading than those from mother-absent homes. Children from broken homes attended school, on the average, four days less than those in the matched group. However, this factor alone did not appear to influence their school achievement. Contrary to many findings, this study showed that there was no significant difference in the extent of behavior problems in the two groups as rated by teachers.

The possibility of sibling patterns influencing reading achievement was investigated by Otto (1965). Otto was concerned with the relationship between the position of the child in the family constellation and reading ability. Subjects were 300 good and 300 poor readers, 50 from each grade from grades four through nine.

The children were then subdivided into five family positions: only, oldest, youngest, middle, and first child in the second family. For each category, the number of good and poor readers was compared. Results showed that the oldest and the only children appeared most frequently in the good reader group at each grade level, but, only at the sixth-grade level, was the difference between the good and the poor reader group significant. Yet, when all good and poor readers were considered, the difference in achievement was highly significant in favor of the oldest-only group. Otto concluded that "while the trend (in family position) is not so marked as to be a reliable guide for predicting reading achievement, it is clear and statistically highly significant." Otto hypothesized several possible reasons for the occurrence of this phenomenon, one being that "parents tend to be more interested and enthusiastic the first time they share a child's experience."

Two studies were reported dealing with school dropouts and reading. One can never be quite sure whether reading problems are the cause of dropouts or whether both reading problems and failure to complete high school have common precipitating causes. Regardless of that fact, interrelationships exist and they should continue to be investigated.

Penty (1956) studied 2384 students who had been in the tenth grade between the years 1947 and 1950 in the Battle Creek, Michigan, high schools. Of these, 593 who were in the lowest quarter of their class in reading were compared with a like number who were in the highest quarter. Data showed that 49.9 per cent of those in the lower quarter dropped out before graduation, while only 14.5 per cent of those in the top quarter left school early. In other words, the attrition was over three times as great at the lower end of the reading distribution than at the top.

Penty then made a comprehensive analysis of the dropouts in the group comprising the lower quarter of the reading distribution. Penty found, for example, that there was no significant difference in the reading scores of the drop-outs and the graduates. Those remaining to graduate read no better than those who dropped out, but apparently there were pressures—home security, counselor encouragement, extra-curricular activities, etc.—strong enough to hold them in school until graduation. The disparity between measures of reading achievement and potential for achievement in both the poor reader dropouts and poor reader graduates indicated that both had a great deal of potential that was unmet. In fact, the data show that seventy per cent of those who left school early were capable of being helped to the point where they could have handled sixth grade materials. The value of reading help was indicated by the fact that there were fewer dropouts among both boys and girls in the low reading group in situations where they had been given help in reading. The significance of reading was implied further in the responses made by students in the lower group to interview questions. "When students were given an opportunity in the interviews to describe the kinds of trouble they had had with school subjects and in classroom situations, their statements were usually found to mean: 'I had trouble with reading,'" Penty wrote. However, it is well to point out that when interviews were held with the school counselors concerning the dropout situations, reasons other than problems with reading were also mentioned as causal factors—economic status of the home, failure of the curriculum to meet their special needs, lack of home interest, and the like.

Watson (1965) also studied the problem of high school dropouts, but his investigation included factors other than reading retardation as possible precipitating causes of failure to graduate. In all, nine possible factors were found: socio-economic status, family mobility, family stability, number of siblings, sex, school attendance, intelligence, scholastic achievement, and starting school age. Two of the most recent classes to finish a large midwestern high school were reassembled as they were in grade six. The combined classes were separated into graduating and dropout sections. Each of these two sections was then redivided into four groups: good and poor reading graduates, good and poor reading non-graduates. Poor readers were those ranking below the thirtieth percentile on a reading test;

the good readers were those who ranked above the thirtieth percentile point.

Watson's data showed that 27 per cent of the dropouts were good readers, while 45.6 per cent were poor readers. Of the graduates, 42.9 per cent were good readers and 20.6 per cent were poor readers. In addition, the study showed that the poor reading graduates differed from the poor reading dropouts on only three of the nine factors studied. In the latter group, there were more students of lower socio-economic status, more with poorer academic grades, and more girls than would be expected by chance. Between the good reading graduates and the poor reading dropouts, there were significant differences on all factors except sex. As one might expect, the latter group was composed of more students who were in mobile families, had more siblings, and had lower intelligence.

Watson also concluded from his data that the poor readers who persisted in school were quite similar to the poor readers who dropped out before graduation. This was very much the same conclusion at which Penty arrived in the preceding study, although Penty was referring particularly to reading status. Watson implied from his study that a child who leaves the elementary grades with an uncorrected reading problem stands greater chances of dropping out of high school than one who is reading normally.

2.6 *Reading competencies*

Several investigations dealing with skill or ability variables related to reading progress are considered in this general section.

Ramsey (1960) determined which of several measured variables were predictive of success in improving various reading abilities. As part of a year-long study to improve reading skills of eleventh graders in regular English classes, Ramsey administered the California Test of Mental Maturity (long form), the Cooperative English Tests: Reading Comprehension, C1, and the Diagnostic Reading Tests, Word Attack, Silent. The results of the intelligence and the word attack tests were then correlated with the *gains* in reading vocabulary, speed, and comprehension.

Ramsey found, for example, that the coefficients of correlation between total I.Q. and *gains* in the areas measured by the Cooperative Test were: vocabulary, .00; reading speed, .05; and comprehension, .08. By correlating the language I.Q. alone with gains in each of the areas, the relationships were not increased perceptibly. The coefficients of correlation between gain in word attack and gains in the same three areas were equally low: .19 with vocabulary, .05 with speed, and .09 with comprehension. Ramsey concluded that factors other than intelligence and word perception skills must be operative in predicting growth in the various dimensions of the reading act on the high school level.

For a number of years, the value of phonics instruction has been an area of investigation on the primary school level. Love (1961) instituted a study with students of secondary school age to determine the relative effects of an experimental phonics program and a "controlled integral reading program." Two matched groups of twelve-year olds, fifteen in each, with a mean reading grade level of 4.5, were given six weeks of instruction in two different word perception programs. The experimental group received phonics as a special drill subject in a remedial reading program. Phonics drill was supplied through a special workbook and the whole-word approach to the teaching of reading. The control group did not use a workbook or have special sessions in word drills. The companion group used a variety of materials, but no phonics workbook nor special phonics drill sessions.

At the end of the instructional period, Love's test data showed that the differences between the two groups were not significant. He concluded that instruction in word perception should be made a part of the integrated reading program. He wrote, " . . . phonics taught in a vacuum as a special drill with the use of a phonics workbook can do more harm than good."

Aaron (1960) compared the achievement scores of a group of seventh grade good readers with those of a group of poor readers in spelling, spelling of phonetic syllables, syllabication, and intelligence. The group of poor readers, 42 in number, represented the lower 27 per cent of the distribution on the California Reading Test and the good readers, a like number, the upper 27 per cent.

Aaron's data showed that the mean achievement scores of the group of good readers surpassed those of the poor readers in all areas measured. Moreover, there was a strong tendency for high or low achievement in reading to be paralleled by corresponding achievement in spelling. Only three of the good readers were poor in spelling and, of the poor readers, only two were in the high group in spelling. This study is one of a number that point to the inherent interrelationships among the various language arts areas. Aaron also emphasized that although the mean scores of the good readers on the various tests surpassed those of the deficient readers, there are still specific skill areas in which individual children show strengths and weaknesses of which the teacher should be aware.

The need for acquisition of a variety of reading skills among twelfth grade students was stressed in a study reported by Strang and Rogers (1965). The unstructured responses to a short story by seventy twelfth graders were analyzed, and then the responses of 14 of the high level readers were compared with those of a like number of the low level readers. A comparison of the performance of the two groups indicated many specific reading skills which needed more practice and instruction by the majority of the students. For example, those in the lower level reading group were less aware of the story elements; they were unable to recognize the main events in a story; and they showed less ability to understand symbolism, figures of speech, and words in context. They were less able to sense the author's mood and viewpoint. They appeared deficient in the basic reading skills related to grasping the purpose of a paragraph, to understanding the transitions in a narrative, to remembering factual information, and to deriving meanings of words. From this study, it is apparent that a high level of reading maturity demands the use of a number of understandings and abilities which apparently are overlooked in instructional programs. Moreover, many of these are areas of competence and understanding seldom measured by a conventional reading test.

2.7 *Instructional factors*

Hoyt and Blackmore (1960) investigated factors that may have accounted for discrepancies between reading achievement and expected achievement in a group of fifty seventh graders. Each child's actual reading achievement, as shown by scores on the Ingraham-Clark Diagnostic Reading Tests (I-II), California Achievement Tests in Reading (III-VII), and the Iowa Test of Basic Skills (VII), were plotted against the potential for achievement or expected achievement derived by converting mental age (California Test of Mental Maturity) into expected grade achievement. This was done at each grade level from one through seven. During the first three or four grades, the achievement level paralleled the expectancy level, but at around the fourth or fifth grade a minus deviation began to occur, with the expected level surpassing the actual level of achievement. In about 85 per cent of the cases, the two curves did not again coincide.

An investigation of possible causes for the phenomenon indicated that, at about the time the minus deviation began to appear, there was a growing tendency for the teachers to give little systematic attention to reading instruction. Little attention was given to reading guides, instruction was spasmodic, and the children were given little direct instruction. Much of the child's time was devoted to reading a book and taking a short comprehension quiz at its completion. The authors concluded that the most decisive factor in the minus deviation "is the kind of instruction offered the children in the intermediate grades."

Another study that yielded results very similar to Hoyt and

Blackmore's was reported by Morrison and Perry (1959). This study was concerned with the comparative incidence of acceleration or retardation in reading and spelling in grades three through eight. A definite trend was reported toward a decrease in acceleration (i.e., difference between grade placement and grade norm) in reading, with the increase in grade level. In reading in grades seven and eight, for example, the differences in months between grade placement and grade norm were –4 and –6 respectively; while in spelling for the same grades, they were +3 and +1. Many characteristics of ineffective teaching were indicated that the authors felt bore on the situation. In particular, emphasis on purposeless oral reading and mechanical phonics to the neglect of meaning were noted. There seemed to be a tendency for the teachers to "assign work rather than teach." The classes were taught as a whole group rather than as individuals with particular needs, and there was an absence of the functional use of reading.

2.8 *Listening ability*

Plessas (1963) explored the influence that auding ability ("the process of listening to, recognizing, and interpreting spoken symbols") might have on such reading abilities as word recognition, vocabulary, and comprehension. Using eighth graders, Plessas compared a group of high and low auders, as measured by the California Auding Test, with their achievement scores on selected portions of the Diagnostic Reading Test, Gates Reading Survey, and the Gates Basic Reading Tests.

Plessas' data showed that the high auders were superior to the low auders in all the reading areas tested and, in all cases, the differences were beyond the .01 level of significance. In comprehension, for example, the mean difference in favor of the high auders was 4.3 grade levels; in vocabulary, it was 3.8 grade levels. In comprehension, the factor showing the greatest difference between the two groups was "noting details" where, in terms of grade equivalence, the difference was six years. The author postulated that, because of the apparent relation between auding and certain reading abilities, "perhaps the development of a specific comprehension skill in one mode of learning (auding or reading) may contribute to a corresponding growth in this same skill in the other mode."

The importance of vocabulary as a factor in reading comprehension was indicated by Traxler (1965) who compared the scores on the Vocabulary Test for High School Students and College Freshmen with their scores in reading comprehension as measured by the Diagnostic Reading Tests: Survey Section, and school grades in English, social studies, science, foreign language, and mathematics. The results from 906 independent school students in grades nine through twelve showed that the coefficients of correlation between general vocabulary and school grades in English, social studies, and science were "low but fairly substantial." Traxler noted that many factors in addition to ability influenced school grades. Thus, a single factor such as vocabulary was not in itself a reliable predictor of academic achievement. Between vocabulary and reading comprehension, however, the relationship was high enough (e.g., in grade eleven, .68) to indicate that this factor was one that "should be taken into account in improving reading ability."

2.9 *Language factors*

Three studies dealing with the relationship between linguistic factors and the reading achievement of high school students were reported. Louthan (1965) investigated the effect on comprehension of passages read in which words of various grammatical form-classes were deleted. Twenty-four prose passages of approximately 500 to 600 words were selected or written. They were prepared in seven cloze forms in which ten per cent of the words were deleted as follows: *1*] the last word in each ten-word segment, *2*] nouns, *3*] verbs, *4*] modifiers, *5*] prepositions and conjunctions, *6*] noun determiners, *7*] substantive uses of pronouns. An eighth form with no deletions was used as a control. Over a three-week period, each of 236 seventh-grade pupils was assigned to read passages at random, each doing six exercises of one type only. The number of correct responses to comprehension questions at the end of each passage provided the data for the study.

Louthan reported that performance on the control passage was superior to that on types 1, 2, 3, and 4. In other words nouns, verbs, and modifiers appeared to be the basic meaning carriers and when they were omitted in the ratio of one to ten there was a marked loss in comprehension. It was noted that comprehension on the passages where the noun determiners (a, the, that, etc.) were omitted was higher than that on all the other passages, including the controls. Louthan felt the investigation demonstrated that "an efficient reading process may be induced in students, and with an understanding of what kinds of words bear the burden of communication. . . . the attention of the problem reader may be focused on the words of those classes."

In the same vein another investigation, reported by O'Donnell (1962), determined the relative contribution of knowledge of language structure and traditional grammar to reading comprehension. To 101 high school seniors, O'Donnell administered the Iowa Grammar Information Test, an experimental Test of Recognition of Structural Relationship in English, along with the Cooperative English Test C1: Reading Comprehension, as the criterion measure.

Coefficients of correlation between the scores on the various variables were as follows: comprehension and awareness of structure, .44; comprehension and grammatical knowledge, .46; vocabulary and structure, .46; vocabulary and grammar knowledge, .90; vocabulary and level of comprehension, .76. Assuming that a knowledge of vocabulary accounted for a considerable amount of the correlation between grammar and comprehension scores, this factor was partialled out. The results indicated "that awareness of structure is related to reading comprehension in a higher degree than knowledge of traditional grammar is." O'Donnell added, however, that the fact remains that the "degree of relationship was not high enough to justify the teaching of grammatical structure as a major means of developing reading comprehension."

An earlier study by Strom (1956), based on traditional grammar, was concerned with the same issue as was O'Donnell's study and resulted in very much the same conclusion. "Does a knowledge of grammar facilitate reading?" Strom asked. To answer the question a test, How Well Do You Read?, having three sections designed to measure comprehension, vocabulary, and grammar and syntax was constructed. The test, along with an intelligence test and a measure of socio-economic background, was administered to sophomores in various types of public and private high schools. An analysis of data indicated little, if any, relation between ability to comprehend the test passages and ability to classify elements of grammar and syntax.

Livingston (1965) reported the effect on critical reading ability of teaching a series of lessons in general semantics. An experimental group of three tenth grade classes was compared with a like group of control subjects. The experimental classes received instruction in general semantics taught in regular English classes by teachers who also taught the control subjects. As preparation for their instruction, the teachers were required to read the semantics texts written by Hawakawa, Lee, and Minteer. No particular instructional methodology was used with either group over the five-week period during which the experiment was being conducted.

At the end of the period, the progress of the two groups was evaulated by means of the Watson-Glaser Critical Thinking Appraisal. The results showed that, while the control group did not change significantly in critical reading ability as a result of the instruction, the gain of the experimental group was significant at the .01 level.

2.*10 Physical factors*

On the basis of some prior research indicating that certain types of reading disability may be related to a chemical imbalance in the neural system, Staiger (1961) determined the influence of the drug, deanol, and a "psychic-energizer" on groups of slightly retarded readers. Experimental groups of elementary pupils, junior high school students, and college sophomores were compared with control groups. Over an eight-week period, the drug was administered to the experimental groups, while a placebo was given to the control groups. Although an analysis of the results of pre- and post-testing showed no significant differences in reading performance between the drug and placebo groups on any level, on clerical speed and accuracy there were differences of statistical significance in favor of the experimental groups. Staiger postulated that only when the performance tasks involved perceptual speed and accuracy did the drug appear to have an effect.

3. *Programs of reading instruction*

Once a decision is made to come to grips with the reading problem on the secondary level, the next question to be faced is that dealing with the type or types of programs to institute. This section reviews studies dealing with this question.

3.*1* *Surveys of reading programs*

McCullough (1957) surveyed 119 studies on the secondary level dealing with reading programs and practices, and from them drew a number of conclusions. From the summary, McCullough generalized that reading programs accomplish goals in terms of what one desires and works for consciously. Although one must be cognizant of specific goals in building the program, a program with goals too narrowly conceived produces limited results. McCullough contended that specific goals of reading instruction need to encompass a broad definition of reading, "if the product is not to be dwarfed and distorted"—a truism worthy of consideration by anyone responsible for developing a secondary school reading program.

Burnett (1966), in discussing issues and innovations in secondary school reading, deplored the slow change that had taken place in the last 25 years in establishing reading programs. In spite of the stand that reading people have taken toward the importance of reading instruction on levels beyond the elementary, Burnett felt that only disappointing progress had been made. Of the programs that had been inaugurated, very few were comprehensive in nature and based upon a "broadly conceived concept of reading," as outlined by McCullough (1957). Burnett believed that lack of progress was due, in large part, to the inadequate pre-service training of teachers as well as to the persistence of the attitude held by many high school teachers that they are subject-matter specialists with little responsibility for the development of reading competency.

At least some degree of optimism may be found in several regional and state surveys that were reported in the last decade. Cawelti (1963) studied reading programs identified in a survey of midwestern high schools. Out of 47 schools surveyed, 27 had some type of reading program, but only 12 of those programs were sufficiently comprehensive to be called developmental, the others being remedial. In 21 of the 27 programs, instruction was provided through the regular class periods, usually English, while in the remaining six, it was given in special periods. Sixty-seven per cent of the programs covered one full year of instruction; 26 per cent covered one semester.

Baughman (1960) reported a comprehensive study of the reading programs in 133 Illinois junior high schools. Eighty-five schools reported having some type of reading program. Twenty-three of the programs were classified as remedial; a like number were classified as developmental. The other schools reported having some combination of corrective, developmental, and remedial programs, with only three schools reporting all three types.

Geake (1961) reported the results of a questionnaire study on the status of reading instruction in Michigan, and compared it with the results of a study done six years earlier. Geake's data showed that, by the end of 1961, about half of Michigan's public high schools planned to have made some "special instructional arrangements" for teaching reading, as compared to forty per cent in 1955. In addition, he reported that, whereas the smaller schools showed an increase in the number and scope of their programs, the largest schools showed a decrease. It is striking to note that 15 programs had been discontinued over the preceding 16 years. Of these programs, five were discontinued because of the inability to find qualified teachers and two were discontinued because of poor results and lack of community support. In particular, Geake pointed out the need for more specially-trained teachers for both remedial and developmental programs.

Regardless of any progress that might be shown in the establishment of reading programs from results of regional or state-wide studies, when one begins to apply to the programs criteria of "goodness" or comprehensiveness, the situation becomes more disturbing. In an attempt to compare existing reading programs on the secondary level with criteria representing a theoretically sound program, Simmons (1963b) surveyed 127 high schools in a five-state upper midwest area. The types of programs, personnel, etc., were compared with criteria considered necessary for a sound modern program. The ideal program, Simmons contended, should be one that touched every student in the school. It should extend instruction in the fundamentals of learning to read; it should provide organized instruction in the specialized types of reading demanded by each subject matter area; and it should stimulate personal and recreatory reading. In addition, it should incorporate provisions for corrective instruction for those students with special needs.

Simmons' survey showed that, in one-third of the secondary schools, there was no reading program of any kind—either developmental or remedial—and that, in the remaining two-thirds, the program was narrow in scope, rigidly administered, and limited as to the number of students involved. These failed to meet his criteria of a "sound modern program." Most of the emphasis in the existing programs was on corrective reading with little attention given to diagnosis or assessment of needs. The specialized training of those in charge of the programs was either fragmentary or non-existent. In general, Simmons pointed out, the findings "paint a dreary picture of today's secondary reading programs."

K. J. Smith (1963) conducted a study of the status and character of reading programs for grades seven and eight in selected schools of Missouri. Programs of some type were reported in 114 or 81 per cent of the 140 schools studied. Of 102 responses indicating types of programs in operation, 23 were designated as developmental, 7 as corrective, 13 as remedial, and one for learners of low intelligence. Other responses indicated various combinations of these programs.

However, when Smith applied criteria of "comprehensiveness" (number of students involved, types of instructional purposes, types of programs provided, etc.) the number of programs was reduced from 114 to 30. When, in turn, Dr. W. S. Gray's (1948) eight-point "criteria underlying sound reading programs" (purpose, staff, materials, evaluation, etc.) were applied to thirty of these programs, the number was reduced to seven. It is apparent that, in discussing programs, one needs to be cognizant of type and quality, for a reading program might be little more than one in name only.

3.2 *Programs of reading in the content areas*

From a comprehensive national report and assessment of the current state of English instruction in 168 selected "good" high schools in the United States, Squire (1965) drew conclusions bearing on the quality of reading instruction offered in connection with the teaching of English. The picture was a distressing one, as Squire pointed out, for it was apparent that there was an absence of attention to the teaching of reading, to say nothing about the teaching of reading of literature. Squire reported that only three to four per cent of instructional time in grade ten was devoted to reading. The amount declined to two per cent in grade twelve.

The observers of teaching procedures in English classrooms reported that they failed to observe a distinction being made between the teaching of literature and the teaching of students *to read* literature. Squire noted, "The student is apparently expected to become an 'active and critical reader' simply from extensive reading." In fact, in only ten schools surveyed did the observers find what could be considered a high level of effectively coordinated instruction in reading. Such findings are particularly disturbing since in fifty per cent of the schools a reading specialist was employed, and *usually the person was a member of the English department.* "Apparently," Squire stated, "such staffing does not guarantee success." In a number of schools, those responsible for the reading program confused the teaching of reading with the teaching of slow learners, and "what may have started as a noble and needed enterprise degenerated into little more than routine presentation of mimeographed drill sheets or merely provision for individual reading." If this is the quality of reading instruction offered in English classrooms in quality high schools, what must it be like in unselected schools?

The literature published over the last decade describes secondary school reading programs of a wide variety of types and purposes and, one might add, with varying degree of success. Many of these programs, in one way or another, were being carried out in close conjunction with instruction in regular content areas.

Reeves (1958) reported a study dealing with the teaching of reading utilizing the resources of regular classroom teachers in English, social studies, and science. Working cooperatively with seven teachers, a wide reading program was organized around eighth grade science and social studies units, with much of the reading carried on in the English classes. Extensive bibliographies were prepared to guide the reading of selections on various levels of achievement, thus providing for the range of reading levels the teachers found in their heterogenous groups.

During the second semester, the students were given greater choice in the materials they wished to read. Much of the reading was done outside of class, while class time was spent in basic instruction through a series of readers. No normative data was provided showing the results of the program at the end of the year. However, for example, Reeves did indicate in one class that, whereas in September 13 students were below average in achievement, in May only 8 were below average. In September, 7 were classified as excellent readers; in May, 16 were so classified.

The most striking feature of the Reeves report was in terms of what occurred the second year. Because the teachers were pleased with the first year results, plans were made to continue the program for the second year. But the following September found two of the teachers no longer available for the project, and the supervisor was given other duties. Consequently, the teachers found themselves working alone rather than cooperatively. The second year results were disappointing and Reeves concluded that "it had been the control of the experiment, the organization of the group working together, the focus of interest on improvement in reading that had made for success."

Another program was described by Scarborough, Bruns and Frazier (1957) with eighth graders. It was their purpose to see what could be accomplished in regular classrooms when instructional materials and learning assignments were adapted to the individual needs of students.

Working with classes of students in English, social studies, and science, the teachers arranged instructional materials on multi-level reading lists from which they made their assignments to students who were reading on three levels of achievement. In addition, those with reading achievement scores below a 6.4 grade level were given special help in a corrective program. The students worked with materials of all types in interest groups rather than ability groups, each student being directed to material coded as to difficulty level. Pre- and post-test results on the Iowa Silent Reading Test indicated that the year's program resulted in an increase in the median grade score for the whole group from 9.4 to 11.3. This study shows the growth in reading achievement derived from an instructional program which permits students to read on levels commensurate with their achievement. It would have been interesting to see what this approach contributed to achievement in each of the three subject areas as well.

Herber (1961) analyzed the mid-year results of an experiment in teaching reading through social studies content. The experiment involved 2000 seventh graders taking a course in state history. Operating on the assumption that the place to teach the reading of social studies is in the class where social studies is being taught and that the person to teach it is the regular class teacher, Herber organized a program where reading was taught in close conjunction with the content of the course. Hence, the skills demanded in social studies reading were taught and practiced in a functional manner. After five months' elapsed time, a random sample of the students was given the Iowa Silent Reading Test to assess progress. Findings indicated that the average gain in reading achievement was from one to two grade levels. An analysis of the progress made by students in the four quartiles of reading ability showed, in general, that students at all achievement levels derived equal benefit from the program.

Fay (1958) reported a group of eleven action studies carried on by students as part of their requirements in an extension class in reading methods. Nine of the reports dealt with activities carried on in the primary-elementary grades, and two dealt with the secondary level. Of the two on the secondary level, one dealt with the teaching of propaganda analysis on the ninth-grade level, and the other dealt with the teaching of certain reading abilities to a group of superior twelfth graders in an elective literature course. Both of these experiments were carried out with success by the classroom teachers.

Fay pointed out, in conclusion, that all eleven teachers whose studies were reported had two things in common: "They were all successful in helping their children to read better, and they were all willing to make the effort to try to find better ways of teaching." These action studies, although they lack a sophisticated research approach, are important as they do point out that instruction can be improved and that pupil changes can be effected when teachers have the willingness to try.

Although the two accounts that follow describe programs carried out with college students, they are being included here because they have several important implications for the teaching of reading on the secondary level. Feinberg, Long, and Rosenheck (1962) described their attempts to improve the academic performance of entering freshmen in a school of business through a non-credit study methods and reading program along with a mandatory lecture and laboratory period. A staff member from the psychology department conducted a fifty-minute weekly lecture on study methods and a member of the counseling staff carried on a fifty-minute weekly laboratory in reading and study skills. Sixty-four control subjects were matched with a like number of experimental subjects and an assessment of progress was made at the end of the first semester of college work and at the end of the course in terms of grade point averages, study habits and skills, personal adjustment, and verbal scores on the Scholastic Aptitude Test. Statistical treatment of the results indicated that all differences between the groups were chance differences, thus showing that the course had little, if any, effect upon any of the factors measured, including grade point averages.

It was felt that one of the factors accounting for lack of success of the course was the mandatory requirement for participation in the reading laboratory. The authors stated: "An informal attitude-survey highlighted the students' resistance to a course they were forced to take without receiving college credit." Strang was quoted as saying that best results of a reading and study course were secured when students recognized their own need for training. The fact that the course made a general approach to reading and study, rather than an approach specific to the study and reading requirements of a particular course area, also may have accounted for the unpromising results.

Some evidence for the validity of this contention is found in the study of Halfter and Douglass (1958) who felt that students in a collegiate school of business needed to acquire a set of thinking-reading skills more specific to that area than the general reading competencies frequently developed through elementary and secondary programs. An examination of the difficulties that students encountered in taking examinations as well as in interpreting textual content in economics, finance, and accounting yielded a group of interpretive abilities quite specific to the commerce area. The Commerce Reading Comprehension

Test, measuring these abilities, and the Cooperative Mathematics Pre-Test yielded a multiple coefficient of correlation of .56 with freshmen grade point averages. The correlation between grade point averages and scores on the ACE was .18; with scores on the Survey Section of the Diagnostic Reading Test it was .15. The authors concluded: "It would seem logical to assume that, if thinking-reading skills are of a certain kind or extensively practiced in social studies and the major fields of study in a collegiate school of business, similar patterns will emerge if other content areas are studied." This generalization provides a strong argument for a reading-study program that is closely related to the demands of specific content areas.

Elizabeth Smith (1957) referred to a program carried out in a New York City high school in which English, science, and social studies teachers cooperated. Primary attention was placed upon the development of communication competencies. Tormey and Patterson (1959) reported gains in a reading program when taught by two special teachers. Berkey (1962) described a reading and study-skills program mandatory for all entering high school freshmen. In groups of 15, students were given eight weeks of work in a reading laboratory. Following this experience, they spent one or two days each week for the remainder of the year in supervised classrooms, "applying techniques learned in the laboratory period." Ramsey (1957) determined the effects on reading development of an approach that combined the teaching of reading and literature in an integrated program in regular eleventh-grade English classes.

If, as several of these studies have indicated, reading instruction on the secondary level may be carried on by the classroom teachers, it is evident that they should have a knowledge of what is involved in the teaching process.

Ross (1965) suggested several techniques that any high school teacher can use for teaching reading through a content field. In fact, these suggestions apply the implications of several of the studies reported in this summary. For example, Ross pointed out the importance of teaching effective study techniques. Here the need for the student to establish study objectives is particularly mentioned and it is emphasized that effective study can take place only when the student has a definite purpose in mind. "The vague, generalized purpose of doing an assignment because it is necessary in order to pass the course never developed purpose in any student." Ross also believed that teaching students to outline and summarize was worthy of the teacher's time. Ross contended, and few would disagree, that one of the major problems students face is their inability to see relationships among ideas. The teaching of outlining as a procedure to help the learner identify relationships as they are developed by the writer was recommended. Otherwise, "there may be an accumulation of isolated facts meaningless to the students."

The question of what a content area teacher needs to know about the teaching of reading to do the job effectively was answered by Niles (1964). Six lessons, Niles wrote, should provide a foundation on which the teacher may build. First, the teacher needs to know that the teaching of reading involves the development of *specific* skills and understandings. Second, the teacher needs to have an understanding of what is involved in teaching the recognition and pronunciation of words. Third, he needs to know how to approach textbook study. Fourth, he should be able to teach his students how to use the library for research and enjoyment. Fifth, he needs to select those materials that facilitate the teaching of reading as well as subject content. Finally, the teacher needs to develop facility in teaching well some one skill belonging to his content field. "If every teacher is to become a teacher of reading he needs to acquire a few basic techniques and understandings for doing the job well."

3.3 *Organizational patterns*

Grissom (1961) studied the various patterns used in organizing successful reading programs on the secondary level. In 15 programs, three basic patterns were found to be in use: *1*]

Special, ability-grouped English classes where primary attention was given to reading. Usually these programs were conducted in grades nine or ten. Found in these programs were fewer differentiated practices, fewer graded materials, and little use of mechanical devices. *2*] Special reading classes devoted entirely to reading improvement. Found here were differentiated materials, practice exercise materials, graded books in various areas of interest, and a few mechanical devices. *3*] Multiple-purpose classes of various types. Some were remedial English classes for low ability students; others, special reading classes for students reading below their potential; and others were voluntary, noncredit clinics and laboratories for the college bound or for those with particular skill deficiencies. Common to all these programs were the cooperative efforts of all the staff in selecting students needing help, an atmosphere conducive to success and individual effort, and adjustments in the program to the individual needs of the students.

DeBoer (1960) described what he considered as desirable classroom organizational practices for effective teaching of reading. Categorically, he contended, "We shall not achieve any real breakthrough in our struggle with the reading problem until we have succeeded in doing something about the regimentation still prevalent in many classes in the subject fields. . . ." Uniform textual assignments, as many have pointed out, are too difficult for some and unchallenging for others. DeBoer contended that in some areas [mathematics, for example], a text is needed as the basic instructional tool; in others [in social studies, for example], wide reading from books varying in content as well as difficulty should be the practice, while the text should provide the general framework of course organization. DeBoer also set down some general guides for a secondary reading program. He recommended that in any area where reading is a major activity, class size should be limited to 25 or 30 students. Regardless of grouping procedures, provision should be made for differentiated instruction. Remedial classes should be organized for extremely retarded readers who cannot make satisfactory progress in the regular classes. Voluntary classes should be established for students desiring to improve in rate or comprehension. If the school size warrants them, clinical facilities should be provided for those who do not respond to remedial instruction. Finally, close liaison should be maintained with parents and school staff.

3.4 *Programs for the handicapped reader*

In discussing groups of students who have been of special concern to teachers on all school levels, a survey of the literature would indicate that the pupil with a reading handicap has drawn the greatest amount of attention. This is understandable, for of all the problems that might interfere with school progress, a reading handicap is usually the most apparent. A number of studies dealing with this particular group of students have been reported in the last decade and are summarized below.

Turner (1959) attested to the value of a specialized program for handicapped readers in a junior high school. The program, labeled "Reading Enrichment," included forty students who had I.Q.'s of 90 or above, who were two years or more retarded in reading, and *who expressed a desire to take the course*. The atmosphere of the class was described as relaxed, quiet, and orderly. A variety of materials was used including library books, texts, and practice materials. At the end of the first semester, the mean change in reading comprehension was 1.5 grades; rate of reading, 1.4 grades; and vocabulary, .5 grade. Turner implied that much of the progress in this special class was due to the fact that each student was there of his own volition: "We still believe it is useless to attempt to help slow readers in junior high school until they want to be helped." In particular, Turner noted the renewed interest that these students took in reading resulting from changes in their self-concept: "These slow readers have been accustomed to so much criticism, both from teachers and parents, that we cannot stress strongly enough that praise and encouragement will make a vast difference in the way they will respond."

A team approach to reading improvement through a ten-week "crash program" was reported by Coston and Merz (1964). Nineteen eighth graders with a history of academic difficulties, low socio-economic level, and frequent changes in residence were taught in their regular language arts class for ninety minutes daily by their regular language arts teacher and a reading teacher using a team approach. While instruction was given by the regular teacher, the reading specialist worked with individual students on their particular problems, most of which were in the areas of word perception, comprehension, and rate. Instructional materials included skill builders, practice books, and a rate controller. After the ten-week instructional period, tests of paragraph comprehension, vocabulary, and the story comprehension showed positive gains of statistical significance. The need for a close articulation of the reading with academic programs in the school was pointed out. In particular, there was a need to help the teachers adjust the difficulty levels of their materials to the reading levels of the students. The writers noted that "content area teachers . . . expected far greater and quicker gains than the youngsters experienced."

The principles upon which remedial or clinical services were organized in New York City were outlined by Cohn (1965). The philosophy upon which the Special Reading Services Program of New York City operates is that reading difficulties in children of normal intelligence are considered "to be a symptom of psychological disorder which is the outcome of many adverse factors within the child and his environment." Their experience shows no single pattern of causative factors underlying reading failure. For acceptance into the Special Services Program, the learner should show reading retardation of at least two years and indicate a need for help in personal-social adjustment. Children whose problem is the result of loss or delay in schooling are handled in the classroom. The clinical facilities "are needed for helping pupils for whom poor reading is one symptom of underlying difficulty." The parents must be willing to cooperate with the social worker, and there must be evidence that the child has at least "average" mental ability.

Helen K. Smith (1965) discussed the identification of factors that inhibit progress in learning to read. For each of seven possible inhibiting factors, the tests or appraisal instruments or measures that may be used to assess the learner's problems were indicated. The areas included were vision, learning and speech, emotional disturbance, brain damage, dominance, environmental factors, and school practices.

An extremely informative article on the characteristics of sound remedial reading instruction was presented by Karlin (1965). He contended that differences, if there are any, between *developmental* and *remedial* reading exist in degree rather than kind. He then proceeded to indicate the psychological principles of learning that should be applied if teaching, developmental or remedial, is to be effective.

1] Learner's needs—an adequate program of appraisal should delineate the learner's particular strengths and weaknesses. The instructional program should build upon strengths and focus on weaknesses.

2] Successful experiences—instruction should be provided on the level at which the learner can profit from it with success.

3] Guided learning—careful instruction should be followed by meaningful practice.

4] Meaningful learning—that which is to be taught should be presented in sequence and order of difficulty.

5] Interference—the learning climate should reflect patience, understanding, and firmness. At every stage, teaching procedures should facilitate, rather than impede, learning.

6] Transfer—reading skills that are taught and practiced should be used functionally in varied situations.

7] Organization—teaching should be differentiated or "individualized" within instructional groups.

8] Interest—instruction should be provided through content that is interesting to the learner. Where necessary, however, one may use profitably with older children materials designed for the younger if the learner understands "that the story content is not the reason for which they are

> reading them [the materials]. The fact that he can read them for the first time is more important . . . than the nature of the content."

Saine (1964) also discussed general principles that should underlie an effective program of remedial reading on the secondary level. A number of excellent points were made in Saine's article, but two were particularly relevant. First, there should be agreement among the staff as to what constitutes a retarded reader. In many situations, a special reading program is doomed to failure before it gets off the ground because it becomes a dumping ground for the school's malcontents, behavior problems, and slow learners. In the second place, a point made by several writers whose studies are summarized in this report was reemphasized: namely, that the program should be voluntary. It should be for those who want to take advantage of the help offered. Saine insisted that those who object to participating in remedial classes should not be forced to do so.

Brazziel and Gordon (1963) were interested in adapting certain features of the New York City Higher Horizons Program to the seventh-grade population in a Southern urban junior high school. A remedial program was instituted and carried on by each teacher, trained through an in-service program. Tests were administered and the students' difficulties were identified, reading instruction was emphasized in the content areas, outside reading was encouraged, and parent support was elicited. Three hundred pupils with a mean I.Q. of 88 were involved in the program. In September the results of the California Achievement Test in Reading yielded a mean score of 5.2; in May, it was 6.7, indicating a mean gain of 1.5 years as contrasted with a normal expected gain of .8 years. To bring the pupils abreast of national norms in reading, the writers assumed that an additional year and a half of similar instruction would be needed. Although the adapted program yielded positive results, the authors felt that it would be far more effective in the lower grades, for: "The problems at this stage have been cumulative for so long that they are infinitely compounded."

Gertrude Downing (1964) discussed some successes in teaching reading to disadvantaged adolescents through the Queens College "BRIDGE" project. Much of the success of this project, Downing felt, could be attributed to their program of continuous informal appraisal of each pupil's performance; their use of high-interest, low-difficulty level materials to make reading a pleasurable activity; their concern for the building of a background of significant experiences to undergird comprehension; their attention to the development of language fluency; and their emphasis on skills instruction in the subject areas. The continuity of relationship between the teachers and children over the three junior high school years, as well as the program of in-service training in the teaching of reading, Downing also believed, made a major contribution to the success of the program.

Nason (1965) listed a group of "musts" that should prevail in dealing with disadvantaged children in a junior high developmental reading program. A class should not be over ten in number. There should be time during the day for an integrated program of reading, language, and spelling. Students should be encouraged to read books at home. Students should not be permitted to move into the general stream of activity until they develop an adequate level of performance in the basic reading competencies and in the skills necessary to read in the content areas. Finally, they should be instructed by teachers who have special training in reading and a special interest in dealing with these types of children.

Dolan (1964) reported an investigation of the use of counseling as an aid for delayed readers. Particularly, he wanted to find out if changes in self-concept could be brought about by a series of counseling sessions and, if so, whether the changes would have any influence on reading achievement. Taking 15 retarded seventh graders, Dolan divided them into three groups as follows: an experimental group of five pupils enrolled in a regular remedial reading class, given six months of group counseling sessions plus individual conferences at the student's request; a matched control group (I) having the same type of remedial reading program as the experimental group, but participating in no counseling activities; a second control group (II) participating in neither the counseling nor the reading program.

At the end of the six-months experimental period, the subjects' pre- and post-test scores were compared on the San Diego Inventory of Reading Attitude. Results indicated that there was positive change of attitudes toward reading in the experimental group, but negative change in the control group, I. In reading, as measured by the Stanford Achievement Test, post-test results compared with pre-test results showed gains in paragraph meaning in the three groups as follows: experimental group, 2+ years; control I, 1.4 years; control II, .4 year. In word meaning, the gains were 2+ years, .1 year, and 1.9 years, respectively. On the basis of these results, Dolan concluded that the counseling sessions " . . . can change self-concepts enough to influence positively a score on a test of an educational skill such as reading." No explanation was offered for the gain in word meaning for the control II group or the lack of gain in this area for the control I pupils. Obviously, too few cases were involved in this study to warrant other than limited conclusions.

An earlier study dealing with the effect of various kinds of counseling-reading relationships with delinquent adolescents was reported by Roman (1957). Roman theorized that a delinquent with a reading disability in conjunction with a severe emotional disturbance needed an "integrated therapeutic and remedial program." To this end he selected twenty-one, 13 to 16 year old delinquent males who had I.Q.'s between 65 and 95, and who achieved in reading at least two years below their mental and chronological ages. They were divided into three matched groups and provided treatment. Group I received work in remedial reading, including the building of a sight vocabulary, word perception techniques, and reading comprehension, properly differentiated to meet the needs of each boy. Group II was involved with "tutorial group therapy." While providing remedial reading assistance, this program used the reading act as a means of stimulating group discussion, thereby helping the learner to discover what might be interfering with his progress in reading. Group III carried on a program of "interview group therapy," having as its primary aim the improvement of mental health. With group III subjects, no particular mention was made of reading or reading problems, although the participants could discuss anything they desired.

A comparison of the pre- and post-test results (Gray Oral Reading Paragraphs) at the end of a seven-month experimental period showed that the group I subjects had made a mean gain of 1.1 grades; group II, 1.8 grades; and group III, .7 of a grade. Measures of the significance of the differences among the gains for the three groups indicated that all were below the .05 level. Group II, however, "showed a trend toward greater gain in reading than either of the other two groups." Extensive measures of psycho-social adjustment indicated that the group receiving the tutorial therapy also showed greater improvement than either of the two other groups. Roman concluded that, for the kinds of subjects involved in the study, remedial reading alone was not sufficient to bring about desired psycho-social changes. Neither was psycho-therapy alone sufficient in the treatment of reading difficulties.

Dorney (1964) determined whether corrective reading instruction would have a mitigating effect on the attitudes and adjustment problems of a group of adolescent delinquents. Forty-five 16 to 20 year-old delinquents with juvenile court histories and I.Q.'s of 75-110 were placed in three matched groups and given treatment as follows: group I was given a 50-session program of "adolescent-oriented" reading instruction, group II was given swimming instruction, and group III received no treatment and served as a control. At the end of the instructional period, the three groups ranked in the order of improvement in mean reading ability (from greatest to least) in the following order: *1*] reading, *2*] control, *3*] swimming. With regard to improved behavior the groups ranked: *1*] reading, *2*] swimming, *3*] control. In their attitude toward authority figures, they ranked: *1*] reading, *2*] control, *3*] swimming. In a follow-up study 18 months later of each subject's court involvement the groups ranked: *1*] reading, *2*] swimming, *3*] control. Dorney concluded that the "treatment of delinquents retarded in reading should emphasize reading instruction as a therapeutic instrument for rehabilitation."

Two excellent summaries of research on the handicapped reader in the secondary school have appeared within the period covered by this digest. Early (1957) summarized 45 studies and articles published between 1935 and 1956 dealing with the causes of reading retardation. The survey covered the areas of mental, physiological, emotional, environmental and social, and educational factors. In conclusion Early pointed out the fact that the causes of reading disabilities were multiple and, as a result, any study of the causes of reading failure should involve all phases of the learner as well as the interactions of any one phase with another. Early also stated that, since causation is multiple, a program of correction should also use various approaches. "A single method of attack may be detrimental as well as useless."

The second review was prepared by McDonald (1961) covering 77 articles and studies current in the late 1950's. McDonald made several cogent observations with respect to certain factors that complicate research in the reading area and account for many of the inconsistencies in findings. He mentioned, in particular, the use of inadequate measures to appraise research results, failure to consider interactions among variables, and an over-emphasis of certain factors or viewpoints resulting in the use of biased populations or improper research designs. In spite of these limitations, however, McDonald found researchers agreeing that "no single cause or factor can be held solely responsible for reading difficulties." He pointed out that reading disability is the result of a constellation of inhibiting factors that may vary with different students and different institutional environments. Whether a given factor becomes functional as a cause of a reading problem depends on how it relates to other factors as part of a constellation. McDonald also suggested that a program of reading improvement should aim toward helping the learner effect a change in his "phenomenal field"—the way he perceives the meanings of objects, facts, and settings. On this point, he wrote: "Material forced upon students without consideration of their present needs and immediate goals tends to acquire a negative connotation. This is no less true even though material be labeled 'remedial' and administered in a clinical setting."

Reading difficulties may occur among bright students as well as among those who are average or below-average in intelligence. Krippner and Herald (1964) made a clinical study of the factors contributing to the reading disabilities of 21 academically talented (mean I.Q., 117.5) elementary and secondary children. They compared factors contributing to their reading disabilities with those operating as etiological factors in a group of children of average intelligence (mean I.Q., 105.2). Boys comprised 86 per cent of the talented group and 90 per cent of the average group. Appraisals were made using tests of auditory discrimination, visual skills, dominance, directional confusion, articulation, environmental deprivation, brain injury, social maturity, neurotic tendencies, and endocrine malfunction as well as tests of reading.

Comparisons of the two groups showed very similar factors operating in both. For example, the factors operating as primary causes of reading handicaps in the talented group were disturbed neurological organization and neurotic tendencies. In the average group, they were disturbed neurological organization and directional confusion. Contributing factors in the talented group were assumed to be poor visual skills and unfavorable educational experiences; in the average group, they were poor visual skills and neurotic tendencies. However, none of the differences was statistically significant. The authors concluded that, in general, the same etiological factors that affect the average learner may also affect the academically talented. They also pointed out the prevalence of emotional problems among the handicapped readers who were academically talented and recommended that remedial instruction needs to "be imbedded in a larger setting of supportive understanding." Krippner and Herald also stressed a point frequently made by some who are neurologically oriented that such factors as visual skills, dominance, and motor coordination may be in need of attention before reading instruction is initiated. Otherwise, tutoring in reading is a "process of sinking shafts into sand."

A program for overcoming reading deficiencies among able pupils on the junior high level was described by Moe and Nania (1960). Twelve pupils having I.Q.'s of 110 or over were identified as high level readers through school grades and reading test results. Reading tests confirmed their assumption that in various skill areas, high level students may show achievement to be below a "readily accessible" potential. Although, in given cases, the composite test score showed achievement to be above the norm for the grades, an examination of sub-test data indicated individual limitations. Deficiencies were particularly apparent in study approaches to chapter-length material and flexibility in reading rate. Students were also vague in their responses when reading for general ideas and details. "Reading was just reading," the authors stated.

A six-week training period consisting of 27 forty-minute sessions was organized and devoted largely to the development of study skills and flexibility in rate. Three weeks were spent in teaching the students to increase their efficiency and comprehension in full-length chapter reading. This was followed by three weeks of work on flexibility in rate. The students began on easy material and progressed to more difficult, higher-level material, working chiefly on the adjustment of rate to specific reading purposes. No machines, eye-span exercises, or phrase exercises were used in this part of the program. The students were asked to read as fast as they could and still maintain adequate comprehension. Three months after the training ended, each pupil was asked to comment on the value of particular types of skill training. Their comments indicated that selective underlining was most helpful. In both reading rate and flexibility (difference between simple and difficult content in words read per minute), the students showed material improvement. In fact, the data indicated that, after three months of elapsed time, all but three of the students read difficult material faster than they did simple material at the beginning of the experiment. By inference, Moe and Nania concluded that the reading program, as described, was useful in helping capable students more nearly attain their full reading potential.

A study of the delayed results of a corrective reading program was reported by Rasmussen and Dunne (1962). A group of 59 seventh graders, average or above in intelligence but retarded in reading, was given a year of corrective instruction. The group was supplied with reading materials on various levels, emphasis was placed on making reading a pleasurable activity, review practice was provided in needed skill areas, and a deliberate attempt was made to develop rapport between teachers and pupils. In the ninth grade, comparisons in reading achievement were made between a control group of twenty students and a matched experimental group. Although the results showed that the corrective group had made more improvement than the control group, the difference was small and not significant statistically.

In spite of the disappointing results in reading growth, the study did show a striking fact with respect to the school dropout rates in the three groups. In the control group of twenty, seven had discontinued school before they reached the ninth grade as compared to none in the experimental group. By the end of the eleventh grade, 14 of the control had withdrawn from school as compared with 3 in the correctional group. The writers attributed the difference in the holding power between the groups to the fact that the students in the correctional program received more "need satisfaction." Smaller classes, individual attention, and recognition resulted in a desire to remain in school. The writers stated that most of the students continued their progress in high school and many developed a keen interest in reading.

Balow (1965) reported the long-term effects of remedial instruction given in a psycho-educational clinic setting. Although the subjects were younger (fifth and sixth graders) than those found in a secondary school, the conclusions and implications of this study are so relevant to upper level children that it is reported here. Eighty per cent of the cases were boys, their intelligence was average, and the average amount of reading retardation was two years. The pupils were given two hours of individual and small group instruction daily for a period of ten weeks. Their major areas of difficulty were word perception and comprehension. A wide variety of materials was available for use, each pupil receiving the type that fitted his particular needs.

The data from Balow's study showed that, prior to remedial instruction, these children had been progressing in reading through regular class instruction at approximately half the rate of normal pupils. During the period of remedial instruction, however, they progressed at a rate nine to twelve times their regular class rate. The rate of subsequent growth seemed to depend on continued attention to their problems. For example, one group of 36 students received no further assistance. A retest after an interval of nine months indicated that although they had not lost the skills that had been acquired during the period of intensive training, neither had they continued to progress. In contrast, the pupils receiving supportive help over periods of from 13 to 36 months continued to develop at a pace more rapid than that preceeding intensive tutoring. The rate of growth over the follow-up period was approximately 75 per cent of normal. Balow concluded that "severe reading disability is best considered a relatively chronic illness needing long-term treatment rather than the short course typically organized in current programs."

A similar study was reported by Tufvander and Zintz (1957). They presented the results of follow-up tests given to 82 subjects, ranging in age from 8 to 17 years, who had received either diagnostic or remedial services in a reading clinic. No indication was given as to the amount of elapsed time between the clinic visit or treatment and the re-test. The sample was divided into two groups: group I, 40 children who had been diagnosed in the clinic but given no corrective help; and group II, 42 children who had been diagnosed and given remedial instruction over varying amounts of time from eight weeks to seven quarters. The re-test data showed that 82 per cent of the cases in group I and 67 per cent of the cases in group II made normal or greater than normal reading progress during the intervening period. Sixty-three per cent of the group I cases received special help after leaving the clinic and, of those, 84 per cent made average or above-average reading growth on re-test. Only 29 per cent of the group II cases received special help after leaving the clinic and, of those, 75 per cent made average or above-average progress. The authors pointed out that most growth was evident when remedial instruction was continued outside the clinic either by parents or teachers.

Robinson and Smith (1962) also reported a follow-up study of individuals who had received remedial help at the University of Chicago Reading Clinic. This study was conducted in 1958 on 44 subjects who had attended the clinic in 1948. Seventeen of these subjects had attended the University of Chicago Laboratory Schools, 11 had come from other schools for diagnosis only, and 16 had followed the diagnosis with remedial instruction. Data relative to subsequent progress of the subjects were collected through questionnaires and interviews. The findings showed that, of this group, only three did not complete high school. Fourteen were still in high school, eleven were enrolled in a college, three had received a master's degree, and of these three, two were pursuing a doctoral program. The writers concluded, "It is clear that most of these children and youth who had difficulties in reading in 1948 have been sufficiently rehabilitated educationally to obtain a formal education."

3.5 *Programs for the able student*

Gowan and Scheibel (1960) investigated the reading status of gifted tenth graders. After digesting the research on the gifted child, the writers concluded that the reading of gifted children frequently failed to measure up to potential and that special programs for children of this type could improve their status. Since it appeared to them that their most serious problem was one of slow rate of reading, a program of intensive training in speed of reading was organized for 34 tenth-grade honor students and their achievement was compared with a group of controls. The six week program was devoted to an intensive program of remedial reading practices with particular emphasis on speed. At the end of the experimental program, the control group showed a mean gain on the Iowa Silent Reading Test of 2 percentile points in general reading ability, while the experimental group gained 11 percentile points. In reading rate, the experimental group gained from a pre-test mean of 284 words per minute to a post-test mean of 896. The writers concluded that educators had not been sufficiently aware of the possible growth in reading rate among gifted students. Comprehension, they felt, was not a major problem, but rate was a serious bottleneck for many.

Sparks (1965) discussed a promising idea that he used successfully with academically talented students in a large high school. Each spring a group of qualified candidates were invited to participate in a seminar program the following year. To be eligible, one must have an I.Q. above 130, be reading on the 98 or 99 percentile, and have A-B grades. The seminar was composed of from 15 to 20 students on all grade levels and met weekly in an extra class period from 7:45 to 8:30 in the morning. The content of the course was primarily in the humanities and included readings in philosophy, discussions on contemporary world affairs, and training in advanced reading and study skills. The skills emphasized were those needed in college courses. All discussions were carried on by the students themselves under the direction of a student teacher. No grades were given although the course gave credit toward graduation. Sparks was enthusiastic about this program and believed that it gave high potential students an opportunity to develop deeper and broader powers of comprehension.

Starkman (1965) studied the effect of reading instruction on a group of students who had taken the College Board Scholastic Aptitude Test. Subjects were 38 high school junior girls who had achieved on the SAT at a level below the expectation of the school counselor. The students were divided into two groups: an experimental group receiving a program of reading instruction three hours weekly for 18 to 24 weeks, depending on the progress made; and a control group receiving no reading instruction. At the end of the period, comparisons of results on the reading pre- and post-tests and test-re-test (alternate form) results on the SAT indicated that although there was significant improvement in reading achievement, there was no significant transfer of ability to achievement on the SAT. Obviously the completion of a concentrated reading improvement program did not give a superior advantage on a measure of academic potential to the students who participated in it.

3.6 *Programs for miscellaneous groups*

A study illustrating the relation of reading to other areas of growth or development was carried out by Sonenberg and Glass (1965). They were interested in the incidence of functional articulatory speech defects in a group of handicapped readers. The reading progress of a group of retarded readers who had articulatory speech defects and who were given both reading and speech therapy was compared with that of a matched group receiving only reading therapy. Forty children with chronological ages between 7 and 16 and who were referred to a reading center were given both diagnostic reading and speech tests. Eighty per cent showed functional speech defects of varying degrees. Tests of auditory discrimination indicated that 15 of the 40 subjects were deficient in this area. Many of the sound substitutions manifested by the children frequently showed up as reading reversals.

Five pairs of these pupils were placed in matched groups. The control group received reading therapy one hour daily, five periods each week for six weeks. An experimental group received the same kind and amount of reading instruction but, in addition, twenty minutes of speech therapy. Based on comparisons of performance on the pre- and post-tests in reading, four of the five experimental subjects made greater improvement in their reading skills than did the matched group of control subjects. Improvement was particularly striking in word analysis and reading comprehension. The importance to be given to training in auditory discrimination was also emphasized, since deficiencies in this area seemed to be an etiological factor in both reading and speech problems.

E. W. Smith (1965) described a high school program for the bilingual. Teaching reading to bilinguals, as in the Southwest, for example, is, in effect, the teaching of the English language—speaking, listening, reading, writing, and thinking. Reading cannot be taught in a manner divorced from the other language areas. It is to be stressed that most of the traditional methods, practices, and materials fail with these children, chiefly because they are foreign to the culture and background from which the child came. Smith emphasized a basic fact that is so frequently overlooked not only when dealing with the bilingual but the culturally different child as well: one has to build a foundation of oral language before attempting to teach him to read. Commercial materials are never exactly right for these children, thus, much has to be written on the spot. Vocabulary development is a slow, wearisome task. The lack of interest and the desire to learn are ever-present problems, since past experiences with school learning tasks frequently have been unpleasant.

In an effort to assess the effectiveness of a program of special reading instruction with a vocational high school population, Forlano and Wrightstone (1956) conducted a study using a population of retarded readers in six New York City vocational high schools. The students were placed in experimental and control groups. The students in the experimental group attended the special reading classes instead of following the regular English program. The students in the control group pursued a normal course of English instruction. Appraisal of progress of the two groups with the Metropolitan Reading Test was made in January and June. Although the January difference of 3.5 months between the two groups in favor of the experimental groups was not statistically significant, the end of the year difference of 4.4 months was highly reliable statistically. The writers concluded that, for the type of instruction used in this study, the duration of the program should be at least two terms.

In summarizing 22 accounts of study skills courses conducted prior to 1957, Entwisle (1960) drew several important conclusions. Although only 2 of the 22 studies dealt with programs on the secondary school level, the observations made are as pertinent there as on the college level where the other twenty studies were done. Entwisle noted, for example, that a study skills course usually was followed by improvement, but it was most beneficial for students who elected to take it. It may be that the desire to enroll in a reading improvement course is one of the primary factors in achieving significant improvement. However, it was pointed out that desire or motivation alone without benefit of instruction was not likely to produce positive results. Somewhat surprising, perhaps, was the observation that any gains noted were not necessarily related to either content or duration of the course. Entwisle noted, too, that where gains were assessed by changes in course grades, the modal gain in grade-point averages was about half a letter grade (i.e. from C to C+), and Entwisle added, "it can be concluded that gains from study-skills courses are often large enough to merit interest."

3.7 *Evaluation of reading programs*

McDonald (1965) made a number of cogent comments with respect to the problems faced by anyone attempting to evaluate the results of a reading course or program. Based upon analysis of 24 references, McDonald noted, among other things, that the measuring instruments used to assess results in many cases lacked sufficient reliability or adequate validity. On some tests, the students could answer the questions on the basis of their background of information alone.

McDonald also questioned the research design used in many studies, saying that there was little change in research design over the last number of years. Moreover, with the use of computers more studies were appearing using large experimental and control groups "reporting masses of involved statistics with all sorts of dubious interpretations which tell little about what changes (if any) occurred or why." Frequently, little attention was given to the Hawthorne effect, as it might influence results, or to experimenter bias. McDonald quoted Spache as pointing out some of the limitations of studies dealing with rate of reading. He emphasized the infrequently considered fact that there is no entity as general improvement in rate of reading. Rate is conditioned by factors such as reader purpose, type of material, and background of understanding.

To McDonald's observations might be added another. It was noted that researchers frequently assessed the value of a given reading program or course in terms of improvement on a reading or study-skills test, failing to take into account changes, if any, that took place in functional reading or study situations where the competencies were being applied. Instead of improved scores on a reading test, the important thing to consider is the change brought about in the reading of literature, history, or science, as difficult as it may be to measure it reliably.

4. *Instructional procedures*

It is rather difficult to differentiate between studies dealing with instructional programs and those related to the effectiveness of various teaching methods or approaches. However, in this section are included chiefly those studies concerned with the use of various devices, methods, or approaches in promoting various aspects of reading growth. It must be pointed out that no attempt is being made here to evaluate the quality of these studies.

4.1 *Mechanical procedures*

A group of studies describe what has come to be known as a mechanical approach to reading instruction where the chief instructional media are devices in the way of tachistoscopes, films, pacers, workbooks, and the like. There has been considerable controversy concerning the use of such materials. Melton (1959) described a six-week developmental reading program with 66 tenth graders using the SRA reading workbooks and the Iowa reading films. Eighty-four per cent of the students gained in percentile rank as a result of the six-week program. The median gain, as measured by the Iowa Silent Reading Test, was from the forty-fifth percentile rank at the beginning of the study to the seventy-fifth at the end. However, 25 of the 66 students showed gains of only ten percentile points or less. Testing the same group again in the eleventh grade, Melton found that 80 per cent showed retained gains in percentile rank that were higher than those at the beginning of the study in the sophomore year, and 41 per cent showed gains that were higher than those at the end of the experiment. Again, it should be pointed out that 25 of the 66 students showed either losses or retained gains of ten percentile points or less over those at the beginning of the study, and 49 showed either losses or retained gains of ten percentile points or less over those at the end of the study in the sophomore year. However, Melton concluded that "the developmental reading program in the sophomore year is worthwhile and contributes to reading improvement. . . ."

Marquis (1963) reported a year-long study involving 700 sophomores, juniors, and seniors. The program used was described as a balanced approach " . . . with one full-time teacher in a developmental reading laboratory, using devices, class texts, and library books." Booths were constructed, each equipped with a Shadowscope, Controlled Readers, and a tachistoscope. In addition, various skill texts were used. English classes reported to the laboratory one day each week for two semesters. Marquis reported the school-wide average gain was 10 percentile points in comprehension and 71 percentile points in reading rate. The average gain on the Cooperative English Test, C1 was seven percentile points ("above the one-year increase necessary on test"). The significance of none of these gains was reported nor was a control group available with which to make a comparative evaluation.

A seven-week study of certain reading instructional procedures, using control and experimental groups of 25 eighth graders in each, was reported by Warren (1962). A wide variety of instructional techniques was used and each group received identical reading and perceptual material. In one group, however, certain devices were used to present the materials: namely the EDL Tach-X and the EDL Controlled Reader. The students met in three sessions each week for seven weeks. Warren reported that both groups made excellent gains. "The use of instruments, in addition, produced marked gains in the rate of reading with equivalent gains in comprehension not matched by the non-instrument group." On the Paragraph Comprehension sub-test of the Iowa Silent Reading Test, used as one measure of growth, the non-instrument group clearly exceeded the instrument group. Warren posited that this might have been due to the use of certain kinds of instruction not possible in the instrument group. Warren suggested, then, that " . . . a reading program must be balanced, stressing a variety of techniques."

The use of the EDL Controlled Reader programs was also investigated by Bottomly (1961). Using 460 pupils in grades five and eight in matched experimental and control groups, Bottomly carried on a program of approximately six weeks duration. The experimental program carried out the prescribed use of the Controlled Reader. The control group carried on their regular developmental program involving "all aspects of reading ability, including values." On tests administered after completion of the experiment, Bottomly reported that there were no significant differences between the groups in any aspect of measured achievement. Five months after the termination of the experiment, a re-test showed differences between the groups significant at the .05 per cent level in favor of the experimental groups except in one school where in comprehension, there was no difference. The author termed this a "late blooming" effect. Bottomly believed that the major use of the Controlled Reader should be for boosting reading speed, with possibly its best use being with average or better achievers who do not at first read rapidly. He discounted its use with students who already read rapidly.

Bormuth and Aker (1961) raised the question of the value of the tachistoscope as a teaching tool. Using matched groups of control and experimental sixth graders, an experiment was conducted in which instructional procedures were carried on in common by both groups over a twenty-week period. However, the experimental groups were given two extra periods each week for tachistoscopic training. At the end of the training period, pre- and post-test comparative results showed no significant differences between the two groups. Chance differences in favor of the experimental groups existed in rate, but, in comprehension and vocabulary, the differences were in favor of the control groups. The writers concluded that it would be doubtful if one could warrant the expenditure of funds to include tachistoscopic training as a regular part of a reading program.

Another investigation into the use of machine-type equipment for reading instruction was carried on by Millman (1963) in New York City. In this study, Millman dealt with questionnaire responses of teachers and pupils in the elementary grades and in junior and senior high school with respect to the value of tachistoscopic equipment, pacers, and accelerators. Millman found that the elementary teachers disagreed as to the effectiveness of mechanical devices in comparison with the more functional type of materials ordinarily employed in teaching reading. Junior high teachers, on the other hand, were quite unanimous in their approval of the devices. Senior high teachers felt that there was little difference between devices and conventional materials. On all levels, however, the pupils felt the equipment to be of value, and enjoyed its use. The author drew attention to a number of limitations of mechanical devices. He recommended the establishment of a permanent evaluation agency, possibly under the aegis of the International Reading Association, to evaluate new devices and procedures and make recommendations concerning their use.

Leavell and Wilson (1956) conducted a study with 290 sophomore students placed in five groups, each receiving experimental treatment as follows: accelerator training, tachistoscopic training, accelerator plus tachistoscopic training, and "direct approach to reading skills" other than with mechanical devices. The fifth group, serving as a control, followed the regular course of study. Results of the various programs were reported for pupils who fell within the normal range of intelligence, and for those who were in the superior range. A statistical analysis of the test data did not favor any specific method within either normal or superior I.Q. range. The writers indicated that systematic vocabulary study and accelerator training, combined with guided free reading, would provide the "best medium for interesting and worthwhile reading experiences for the majority of pupils at the tenth-grade level."

Nasman (1966) described and reported the results of a six-week reading improvement program involving experimental and control groups of ninth-grade students in two junior high schools. The experimental classes, taught by two special reading teachers, used a variety of reading materials and mechanical aids including pacers, multi-level materials, films, reading improvement texts, library books, reference materials, etc. On the basis of the Gates Survey Test, different forms being used for pre- and post-testing, the experimental group excelled the control group to a highly significant degree at the end of the six-week instructional period. Six months after the program had been terminated the two groups were compared again. Although the experimental group surpassed the control group by a statistically significant degree, the difference was much less than at the time of the first post-testing. To forestall this loss, Nasman suggested that a period of reading reinforcement be instituted toward the end of the school year or that the six-week program be lengthened. However, in comparing the second post-test results with those of the pre-test, Nasman found that the students had retained a highly significant degree of reading growth despite the loss occurring six months after the program had terminated.

Another segment of Nasman's study dealt with students' achievement by grade levels, seven through nine; by three aptitude levels; and by sex. The writer reported that the six-week program was most successful for grade nine, equally valuable for all three aptitude groups, and as helpful for boys as for girls.

Although the following study reported by Mayhew and Weaver (1960) was conducted at the college level, it is included in this summary since its findings seem as pertinent at the high school level as at the college. For one semester, 96 beginning university students reading below the tenth-grade level met twice weekly in reading improvement classes. The students were placed in four groups, all groups were taught by the same teacher, but each group received a particular type of instruction as follows: Group I used the Harvard Reading Materials. Instruction consisted chiefly of practice in silent reading and self-checking of results. Group II used the SRA Better Reading Book, 3. Class procedure was similar to group I. Group III made use of both the SRA and Harvard reading materials, the Harvard Films, and a tachistoscope. Group IV had no visual aids of any kind, but used both the SRA and the Harvard reading materials in alternate manner. An evaluation of results at the end of the experimental period showed that the gains of groups I, II, and III were almost identical. Instruction seemed less effective in group IV where the writers felt a possible explanation might be in the variability in difficulty of the materials. From the data gathered in this study the writers concluded: "It seems obvious . . . that it is not necessary to own a tachistoscope or reading films in order to improve reading skills"

Cawley, Chaffin, and Brunning (1965) evaluated the effectiveness of two reading improvement programs independently planned by the respective teachers. The authors desired to assess the "extent to which the reading improvement program itself could yield appropriate gains" rather than to determine the effectiveness of specific materials. The program utilized "commercial materials and structured reading activities" rather than those prepared and organized by the teachers. Two groups of seventh graders reading below their age and grade levels, although not considered disabled readers, were involved in the study. One group used the SRA Reading Laboratory for two days each week, the Reading for Understanding Laboratory one day, Progress Folders with Better Reading Books one day, and the Controlled Reader on the final day. The other group used the SRA materials two days, the Controlled Reader two days, and individual instruction in specific skill areas on the final day. The subjects were pre-tested in September and post-tested in January when instruction was terminated and, again, in May. Between the pre-tests and both post-tests, both groups showed significant gains. Both approaches appeared to produce comparable results, and the writers concluded that "a reading improvement program conducted by teachers who concentrate their efforts in this area and who structure a program adjusted to the needs of students can yield significant improvement."

Another study which indicated the value or lack of value, as the case may be, of certain instructional procedures was reported by C. M. Thornton (1960). Using matched groups of senior level high school students with average to above-average potential but average reading achievement, he provided an experimental group of 40 students with a program consisting largely of the use of reading pacers and reading-study tests consisting of exercises followed by vocabulary and comprehension tests. The control group followed the regular academic curriculum with no special reading instruction. This program was carried on for five fifty-minute periods each week for sixteen weeks.

At the end of the experimental period, mean differences between scores made on alternate forms of the Iowa Silent Reading Test, administered as pre- and post-tests, indicated that both groups made statistically significant gains in rate, comprehension, and vocabulary over the sixteen-week period. However, the comparison between the post-test scores of the two groups showed that, where there was a statistically significant difference between them in rate, such was not the case in either comprehension or vocabulary. In fact, the control group earned mean scores slightly higher than those of the experimental group. The disappointing results, Thornton contended, appeared to be due to the fact that the teachers, tending to regard machines and drill devices as a panacea, had relied too heavily on them.

During the following summer, another group of similar type students was enrolled in an eight-week program where the teachers gave "less attention to pacers and more attention to vocabulary and comprehension training." The test, re-test results showed progress in rate, vocabulary, and comprehension, with the mean differences being considerably higher than those in the original experiment. Although there was no control group with which to make a comparison, Thornton concluded that the summer program indicated that very significant gains were made in the three areas studied. Since these gains seemed relatively greater than those made in sixteen weeks in the experimental class during the regular year, the teachers assumed that the summer program was superior.

Karlin (1958) evaluated a group of studies dealing with the use of three types of apparatus—flashmeters, pacers, and films—on the elementary, high school, college, and adult levels.

Most of these studies were carried out prior to 1954. Karlin found in 11 of 12 studies comparing "natural" reading with machine reading, that the groups receiving the former type of instruction either equaled or surpassed those receiving the latter. He wrote: " . . . it is reasonable to suggest from what information is presently available that perhaps moneys which might be spent for the purchase of reading machines be used for other purposes."

In like manner, Spache (1958) summarized 54 studies and reports concerning the effectiveness of mechanical devices in producing permanent results in reading rate. He found that the retention in improvement in rate varied from 51 per cent to 84 per cent six to twelve months after training, with comprehension scores remaining fairly constant. However, Spache concluded that, insofar as the use of mechanical devices was concerned for effecting reading improvement, " . . . we have found little evidence that various mechanical devices produce greater improvement in rate of reading than other approaches." But, since they do apparently contribute to relatively permanent growth in rate of reading, it would be unwise to dismiss their use as insignificant.

Spache theorized, on the basis of the data from the studies reviewed, that mechanical training was valuable because it resulted in more rapid and accurate visual discrimination. In effect, the reader was being taught to read with fewer cues and to guess more rapidly what he saw peripherally. On the basis of this assumption, Spache then proceeded to suggest a series of principles, materials, and a sequence of steps that might be employed to enable one to make more effective and intelligent use of mechanical devices for the improvement of reading ability.

Carrillo (1962) discussed, among other things, materials useful in a junior high school reading program. It was his belief that basal readers are probably the best type of instructional material because of their organization, provision for systematic skill development, accompanying practice book, and instructional guide. Because such materials as the SRA Reading Laboratory do not provide a complete reading program, Carrillo recommended that they be used in conjunction with basal materials. A combination of methods and materials, varying with pupil levels, needs, and problems, are highly important in a sound program.

4.2 *Individualized procedures*

Several studies have been reported within the period covered by this summary on the use of an individualized approach to reading on the secondary level. On the primary-elementary levels, the literature on the use of individualized reading is voluminous, although only a few studies have been reported on the junior and senior high school levels.

Walker (1961) evaluated three methods of teaching reading in the seventh grade with three matched groups of students. One group used the SRA Reading Laboratory; the second, an individualized approach; and the third, a "rather conventional" approach. Instruction was carried on 45 minutes a day over a period of six weeks. Students in the individualized group used a variety of materials to meet individual needs. Work on specific skills was provided as needed. In the "conventional" group, the teacher used a seventh grade text and accompanying workbook with the entire class. No provision was made for differentiated instruction nor were any supplementary materials used.

Walker found that, in terms of all the students in the three classes, the per cent of increase was higher for the SRA and the individualized groups than for the conventional group, although when the gains for the three groups were compared, there were no significant differences. Walker also examined the achievement of the lower half of each class and found that the progress was substantial in both the individualized and SRA groups. He reported that, in the SRA group, the progress was quite even, with each child making a small degree of improvement. In the experimental group, some children made very large increases while others made almost no progress. Walker admitted that the poor showing of the control group may have been due to the fact that the teachers gave little or no attention to the needs of individual children.

Noall (1961) gave a comprehensive report of two investigations on the use of an individualized, self-directed approach to reading instruction. The first investigation was undertaken to see to what extent reading skills could be taught to a large number of high school students in a single group and how effectively individual needs could be met. For a period of seven weeks, one hour after school three times weekly, a group of 114 eleventh and twelfth graders worked individually, but in a group, on reading and study skills. The students were pre-tested at the beginning of the experiment and assigned to different materials on the basis of need as indicated by the tests scores. A variety of materials was available for use including skill tests, Readers Digest and SRA materials, vocabulary builders, and materials drawn from periodicals and magazines. Each student proceeded at his own rate and self-checked his own work. A teacher was available for help as needed. Pre- and post-test comparisons with several different measures indicated that the 'test scores after the experiment were significantly better (at or above the .01 level) on all instruments used." On the basis of the results, Noall concluded that there was an indication that "large groups of students can be taught many and varied skills in reading with provision for individual differences in intelligence, levels of reading ability, speed of reading, progress rates, and areas of weakness."

The second study, reported in the same article, was carried out to determine how an experimental group, using the same kind of self-directed individualized approach as that used in the first study, would compare in achievement with a control group using "uniform class instruction." Two matched groups of 25 students in each were organized for the experiment which extended over a period of a six-week summer session. Students in grades seven through college level were accepted in the program providing they expressed a strong desire to learn.

Students given the "uniform class instruction" were taught by a skilled classroom teacher who used a variety of materials such as books, workbooks, and "machine equipment." The individualized group followed much the same procedures as those described in the first study. Twenty-four student teachers, enrolled in a summer school class, were available for help in both the experimental and control groups.

At the end of the experiment, a comparison of pre- and post-test results showed that both groups had made "highly significant" gains on two different reading tests—gains of nearly three grade levels after six weeks of practice. Since the gains were similar in both groups, Noall concluded that " . . . a self-directed individualized program for development of reading skills is possible and valid." However, "the best reading developmental program probably lies in a combination of these two methods with skills being developed on the individualized basis and appreciation (application?), integration, and transfer of skills in the unified classroom."

Gold (1964) identified forty under-achievers in the tenth grade of a New York City suburban high school and divided them into two comparable groups. For a period of three months, twice weekly in groups of six to eight, one group received individualized reading instruction, while the other received instruction in a group situation. At the end of the period, a comparison of test results indicated that both groups had made significant improvement in measures of reading vocabulary and comprehension over those earned at the beginning of the experiment. However, there was no difference between the groups in the reading variables, except in reading rate where the group-reading class was superior. Gold concluded that the individualized plan may be usefully applied, but had no particular advantage over the more commonly used group reading procedure.

The problem of providing for individual, as well as the group, needs of learners has been a challenging one to teachers on all educational levels. Karlin (1964) discussed this, saying that the problem was more one of organization than methodology. He suggested several different ways in which classroom procedures could be organized. The first was through the use of individualized reading, where each student selects a particular book he wishes to read, and instruction in the skills and competencies are given in terms of needs as they are sensed by the learner and his teacher. The second was through the use of differentiated assignments in the content areas, with learning tasks and materials differentiated in terms of the ability and potential of the learner. Karlin also suggested the use of intra-class grouping in which the class is divided into sub-groups in terms of instructional levels. Inter-class grouping was still another organizational practice where students of similar ability were grouped for reading instruction regardless of school grade. The reading classes met at the same time each day and, within the class, grade lines disappeared. Commercially prepared multi-level materials, graded in difficulty are now available for use regardless of how a class is organized. These materials are designed to permit the student to work independently at his own rate. Karlin felt, however, that multi-level materials could be used most effectively for practice after the teacher has taught the skill through an instructional lesson. Karlin in his conclusion, said: "No organizational plan, no hardware, no materials alone or in combination can solve the problem for us."

Believing that the reading of English literature should acquaint the student with the "process of examination" of literary selections, Bennett (1965) described an individualized approach he used in teaching the reading of a novel. Essentially his major goal was "developing the student's ability to determine to what extent the author uses ideas, people, and places to accomplish his purpose or develop theme." Rather than an intensive group study of selected novels, each student selected for himself the book he wished to read in relation to given interest areas. Through teacher-directed class discussion, small group conferences, study-guides, teacher-student conferences, and student-prepared critical reactions, the students acquired skills and understandings involved in reading a particular literary form.

Bennett concluded: "We did not find this plan to be a sure method for all, but we feel we were more successful than had we attempted a one-novel approach."

4.3 *Programed instruction*

Several investigations were reported concerning the use and value of programed instruction on the secondary level. The first was that of Calvin and Hanley (1962) who investigated the hypothesis that students who took mathematics courses in programed form would improve in reading ability when compared to control subjects taking the same courses from a textbook. Four hundred-eight students who had taken programed courses in plane geometry, algebra I, and algebra II were compared with control groups instructed in the conventional manner. A comparison of STEP reading scores taken in the fall with those of the Cooperative English Test, C1, administered in the spring, showed that, although the experimental subjects were superior in speed of comprehension, there were no significant differences between the groups in the other variables. The writers concluded that increases in reading comprehension do not invariably accompany the use of programed material.

Another study of the use of programed materials was that reported by Raygor and Summers (1963). Taking one segment of the comprehension area (reading for the main idea), the authors gave three hours of instruction to matched groups of eleventh graders by two different methods. An experimental group was taught with a prepared programed sequence of materials dealing with the skill being developed. The second experimental group used the Power Builder section of the SRA College Preparatory Reading Laboratory. A comparison of the pre- and post-test results of the two groups demonstrated that both made significant gains. However, there were no significant differences between the post-test results for the total group, and the total group split into top and bottom halves. Consequently, the authors wrote, " . . . it is not possible to state that one method of teaching reading was superior to the other."

4.4 *Procedures for increasing rate of reading*

Writers discussing maturity in reading frequently stress the importance of varying the rate of reading according to the purpose for reading. The question of whether secondary school students are able to demonstrate such flexibility was investigated by Sister Herculane (1961). One hundred-two eighth graders, whose I.Q.'s and reading ability were average or above, were asked to read three passages with purposes calling for skimming, rapid, and thorough reading. These students were unable to change their rate according to the three purposes given. Moreover, they were unable either to define or explain the concept of flexibility. Approximately ninety per cent were unaware of the need to vary their rate. The writer concluded that there was an obvious "need of re-evaluating the reading program at the upper elementary level to study the need for greater emphasis on the development of flexibility in reading."

Similar findings to those reported by Sister Herculane were found by Sister Theophemia (1962). Four hundred-fifty eighth graders were administered the EDL Reading Versatility Test which assesses the ability of the reader to adapt his reading rate to five different conditions, ranging from careful and accurate reading to skimming. An analysis of the findings showed that there was "great lack of flexibility in reading among upper grade elementary school children."

Braam (1963) determined whether students could be taught to effectively adjust their reading rate in relation to varying characteristics of the material read. Two forms of a flexibility test, each having five sections varying in length from 750 to 900 words and calling for the use of various reading rates, were devised. Seventy-one college bound high school senior boys and girls in a summer camp were tested with the first form of the test. Results showed the students used a slow, inflexible rate and a relative uniformity in reading all five of the selections. After a six-week instructional period, the students were post-tested with the alternate form of the test. Results showed an increase in both rate and flexibility of reading. Braam also found that, with the flexible reader, there was a greater relation between familiarity with the material and the rate at which it was read than there was between difficulty of the material and rate.

To determine the relative value of two approaches to the development of reading rate apart from flexibility was the purpose of a study reported by Geake (1963). Sixty students in grades seven through twelve were placed in four groups according to intelligence and initial reading rate. All four groups were then given 15 sessions of reading rate instruction. The author described the instruction as utilizing only "verbal set," i.e., admonition to read faster. No mechanical devices of any kind were used. The students were tested immediately after the experimental period and again 15 weeks later to determine the retention of gain. Geake reported a significant mean gain in the four groups of 496.9 words per minute over the initial test. However, there were equally significant losses in comprehension for the initially fast readers as well as for the total group of sixty students.

Results of tests, administered again 15 weeks after the end of the training period, revealed that the comprehension scores had returned to their pre-training levels and the reading rates had dropped from an average of 744 to 402 words per minute. However, the final mean rate was still greater by 155 words per minute over the initial rate. Geake found also that students of above-average ability who were initially rapid readers were still the faster readers 15 weeks after the end of the training period.

Another study confirming Geake's contention with regard to the value of verbal instructions given to students as guides to the improvement of rate was reported by Marvel (1959). Marvel was interested in noting the relative effects of "set" (verbal instruction) and the tachistoscope in improving rate of reading. One hundred fifty-six sophomore students were divided into four groups: group one received tachistoscopic training; group two received tachistoscope training and verbal instruction; group three, verbal instruction alone; and group four, the control group, received no special instruction. The experiment was carried on for a period of eight weeks with two twenty-minute periods each week.

Verbal set emerged as the most significant variable. The members of the group receiving only verbal instruction not only read faster, but they retained more than either of the other three groups. Marvel concluded that, while any method or device which has possibilities of enhancing motivation should be investigated, " . . . one should be cautioned against sole dependence on one method or device which seems popular or novel for the moment. . . . Within probability the requisite skills for improving reading rate lie in the ability of the teacher to motivate the students for an increase in reading rate, and expensive apparatus are not essential to release these potentialities."

4.5 *Miscellaneous procedures*

Eichholz and Barbe (1961) determined the effectiveness of a self-teaching, self-checking procedure for the development of vocabulary in the seventh grade. An experimental group was matched with a control group. For thirty minutes once a week, the experimental group was given special work in vocabulary building which consisted of a teacher-prepared talk on word origins, stories in which words were to be learned in context, and the self-teaching, self-checking exercises. The control group was given no special work in vocabulary building. At the end of an eight-week period, both groups were tested on the words taught and results compared with a pre-test. As might be expected, the experimental group showed significant gain over the control group. The average gain of the experimental students over the control students was equivalent to eight weeks of growth for each week of instruction.

A study of extensive instruction in vocabulary development was reported by Jackson and Dizney (1963). In this study, however, the investigators were interested in the possible effect of vocabulary development on reading comprehension and rate. Forty-five senior high school students were randomly assigned to two English classes. The experimental class received 27 weeks of intensive vocabulary instruction involving the use of the Harbrace Vocabulary Workshop. In addition, special attention was directed to the glossary in their literature anthology as well as to language symbolism, figurative language, etc., in their study of the English novel. The control group received no special work in vocabulary over and above that involved in their regular course of study. A comparison of the two groups at the end of the experiment indicated a statistically significant difference in favor of the experimental group in vocabulary understanding. On the other hand, there was no difference between the groups in level or speed of comprehension. Neither was there a difference between measures of the ability to interpret literary and social studies materials. The writers concluded that word knowledge should not be equated with comprehension; for comprehension, as a dimension of the reading act, includes far more than a knowledge of words.

The relative effects of limited and wide reading with high school students was an area of special concern to Hough (1953). Classes of eleventh graders alternately read material organized in one of two different ways in thirty-minute periods. In one, they read only the material that was presented; in the other, they read a passage of similar length, but, in addition, read as much related material as they could within the thirty-minute limit. The students were pre-tested, post-tested, and then tested for retention seven weeks later. Comparisons were also made between groups of superior and inferior readers.

Hough reported that both limited and wide reading produced significant gains in information for the groups as a whole as well as for those with superior and limited reading ability. For immediate recall, wide reading was significantly more effective than limited reading for the class as a whole and for the superior readers, but not for the limited readers. After seven weeks, the gains made by superior readers from wide reading were still significantly greater than those made from limited reading. With the inferior readers the two methods showed no significant difference. On the basis of his findings, Hough concluded that "the secondary teacher who limits the reading opportunities of her students to a day-by-day study of a limited body of material is denying them the privilege of learning to the fullest degree."

Forseth (1964) assessed the possible effect of the study of geometry on reading achievement. Using Thorndike's contention that "understanding a paragraph is like solving a problem in mathematics," Forseth set out to discover if a year's instruction in geometry would influence the kinds of reading abilities measured by the Schrammel-Gray High School and College Reading Test. Matching a group of non-geometry students with a group having a course in geometry, Forseth found that end-of-the-year comparisons between the groups showed that in gross comprehension, reading rate, and comprehension-efficiency the geometry groups were superior to the non-geometry groups to a statistically significant degree. To see if other subject matter areas might possibly have a similar influence on reading, he compared matched groups of biology and non-biology students and home economics and non-home economics students in their achievement in the same three reading areas and found that any differences that existed were not significant.

In a similar way, Weaver and Black (1965) investigated the influence that the reading of science fiction would have on reasoning abilities. They matched a group of 21 high school science fiction readers with a similar group that did not read science fiction. Reasoning ability was measured by the STEP. Comparisons between the two groups showed that there were no significant differences in reasoning ability. The authors concluded: "The frequent reading of science fiction does not appear to result in or influence the structure of science reasoning abilities as measured by the STEP test."

Glock and Millman (1964) studied the immediate and long term effects of instruction in a variety of reading and study skills, using above-average high school juniors as subjects. Eighty-two students with a mean I.Q. of 117 were placed in experimental and control groups for an instructional period of one semester. The experimental subjects met in their regular English classes three days weekly and, on the remaining two days, were given instruction in rapid reading, reading comprehension, vocabulary development, note taking, differentiating between main ideas and details, etc. The control students met in their English classes five periods weekly for regular instruction.

At the end of the term, the achievement levels of the two groups were compared on measures of study skills, speed of reading tests, reading achievement, and grade averages. All comparisons between the groups showed very small and nonsignificant gains. In some cases, the gains were in favor of the experimental group; in others, they were in favor of the control group. Progress of the two groups was compared again at the end of the senior year and, for those students continuing into college, again at the end of their freshman year. Again, the results were disappointing and failed to show the long term value of the experimental program other than in rate of reading, where the experimental students read from 8 to 15 per cent faster than the control students. The authors stated that "any substantial superiority in study habits which the experimental group *may* have had immediately at the end of the course was not in evidence by the time they completed their first year in college."

Glock and Millman posed several possible explanations for the absence of positive values of the program. One was that the students were already achieving at a high level where gains, if any, might be slight. Second, the program was mandatory and this, coupled with their already high level of achievement, may have been a significant factor.

4.6 *Readability of instructional materials*

Assessing the readability levels of class texts and comparing them with the reading levels of the students who were expected to read these materials was an area of concern to several investigators during the last decade. Typical of these studies was Miller's (1962). Miller assessed, using the Dale-Chall and the Flesch formulas, the readability levels of five widely used junior high school industrial arts texts. As might be expected, he found the texts varying considerably in difficulty. He also found major variations between samples within any one book. Miller next determined the reading ability of 911 ninth-grade boys, using the Iowa Tests of Basic Skills. About seventy per cent of the students tested fell below the ninth grade level although their average I.Q. was 100.9. By comparing the readability of each book with the reading levels of the students, Miller was able to show the percentage who might be assumed to be able to read all or parts of it in an acceptable manner. In the text assessed as most useful, 23 of the 34 rated samples were at the eighth-grade level or higher and above the reading level of 55 per cent of the students. In the most difficult text, 18 of the 34 rated samples were at the tenth grade level or higher and were beyond the reading level of 86.4 per cent of the readers. It is obvious that even the easiest of the five texts would present major reading difficulties to a substantial portion of the group studied. Miller suggested that authors of school texts should be cognizant of the concept of readability, so that the reading level of the material they prepare is more nearly compatable with the reading levels of students who use it.

Belden and Lee (1961) analyzed five biology texts, selected by the state textbook committee, to determine their readability levels through the use of the Dale-Chall formula. They tested 357 students in tenth-grade biology classes with the Nelson-Denny Reading Test. The reading achievement levels were then compared with the readability levels of the texts. The criterion of acceptability of a text was a readability score one grade below the measured reading ability of the student. The writers found that the five texts would be "useful" to only 37, 40, 42, 50, and 59 per cent, respectively, of the students reading them.

The following year the same writers, Belden and Lee (1962), compared five chemistry and five physics texts with the measured reading ability of the students using the materials, in the same manner as in the prior study. They found that the five chemistry texts would be "useful" to 34 to 47 per cent of the students, while the five physics texts were somewhat easier, being useful to 62 to 90 per cent of the students.

Jacobson (1965) studied the relative difficulty of physics and chemistry texts in state-wide use in Minnesota. Instead of using a readability formula to assess the difficulty of the content, Jacobson asked students to underline in given samples the words which they did not understand. The percentage of underlined words indicated the index of reading difficulty. Sixteen students read samples from 16 chemistry and 16 physics texts in use in ten public high schools.

As the other writers have already reported, Jacobson found a distinct difference in the difficulties of the books appraised. The most difficult physics text had a low popularity rating in terms of use and was significantly more difficult than any of the other books. The second most difficult text was more difficult than ten of the books assessed, but was the third most widely used physics text. The writer emphasized the fact that, in the selection of either the physics or the chemistry texts, there was no evidence that reading difficulty had been considered as a criterion of acceptability by those responsible for selecting books for adoption.

In similar manner, Aukerman (1965) assessed the difficulty levels of literature anthologies. He concluded that the readability data revealed "that there are few if any literature anthologies that can be read at the independent reading level by any secondary school students in the bottom 25 per cent . . . in as much as such students are reading at the fifth-grade level and below." To meet the reading demands of all the students, Aukerman recommended the use of multi-texts, so that material could be profitably read by students on various levels of achievement.

Marshall (1962) questioned the use of commonly used readability formula for the assessment of the difficulty level of scientific material. Using the Flesch formula, Marshall assessed the readability of selected passages from physics texts. The material was then rewritten on a more readable level, according to the formula, and both passages were then read by different groups of students to see if the level of comprehension on the rewritten material would be higher than that on the original passages.

Marshall found no relationship between readability level and level of comprehension of the passages read. Students did as well on one type of passage as the other. He concluded that use of the Flesch Reading Ease Formula to assess the readability of high school physics texts was unjustifiable. He felt that, because the formula was developed and norms established on non-technical, non-scientific materials, its use should be limited to content similar to that on which the formula was developed.

Believing that there had been a failure to take into account the factor of interest in assessing the readability of materials, Bernstein (1955) investigated its relation to reading comprehension. Two stories, each approximately 1200 words in length, were rewritten to make them comparable in difficulty according to readability formulas. They were so prepared that the interest factor in one was much greater than that of the other. The passages were read by 100 ninth graders. For each passage the writer secured an interest rating on a five-point scale as well as a comprehension score. Results showed that the students read the more interesting story with superior comprehension, thus supporting the contention that interest is a factor to be considered in determining the readability of content.

5. *Reading interests*

5.1 *Reading habits and interests of young people*

One of the most fruitful areas of investigation over the last decade has had to do with reading interests, tastes, factors related to reading interests, and reading interests in relation to other factors. Jewett (1957), in a U. S. Office of Education Monograph *Improving Reading in the Junior High School,* summarized the significant research on the reading interests of the twelve to fifteen year olds. From this research, he drew nine generalizations relating to the reading interests of young adolescents. Animal stories, adventure, mystery, humor, patriotic stories, and biographies have appeal to both boys and girls. Stories dealing with science, aviation, and outdoor life are particularly interesting to boys; while content dealing with romance, dating, sentiment, and family relationships are liked by girls. Much of the research to be reported in this section confirms many of Jewett's conclusions.

Jewett admonished his readers with a truism frequently overlooked by those who use research findings on children's interests as a general guide to reading. "No research can tell us all we need to know about our pupils' interests. We need to know the reading interests adolescents have in common, but we also need to be alert to what Henry and Jean are interested in reading on a certain day and what they would probably learn to like if we opened the gates to a wider, richer range of reading experiences."

Witty (1961) reported a comprehensive questionnaire study of the interests, leisure time pursuits, vocational aspirations, etc., of boys and girls in grades nine through twelve. On each of the four levels, Witty secured responses from 300 pupils, the number divided approximately equally between boys and girls. The types and amount of information drawn from these responses demands the reading of the full report. However, a few of the salient points, as they relate in one way or another to reading, are mentioned here.

When listing their free-time pursuits, 36 per cent of the boys in grades nine and ten indicated their preference for television, while 17 per cent preferred reading. Forty-seven per cent of the girls in these two grades preferred television, while 45 per cent preferred reading. In grades eleven and twelve 34 per cent of the boys listed reading as their preferred free-time activity, while 23 per cent listed television viewing. Forty-nine per cent of the girls listed reading as first, and 34 per cent listed television watching as second in the same two grades. Reading and TV watching contended for first and second place on all four levels for both boys and girls. Boys and girls spent approximately the same amount of time in daily reading outside of school—the boys, 1.3 hours on each grade level; the girls, 1.4 hours. In TV viewing, the average number of hours spent weekly was 15.5 by students in grades nine and ten, and 12 in grades eleven and twelve. On each level, the girls spent about one hour less each week than the boys. Witty's data pointed to the popularity of television on all levels and dramatized the competition that it, along with the other mass media, gives to reading. He suggested that parents and teachers should "help students to develop more efficient reading habits and skills so that they will enjoy the act of reading as well as the results."

Witty's findings related to the types of reading liked by the students on the various levels tend to confirm those of other studies. Boys liked science fiction, action, and adventure; the girls preferred romance and career stories, mystery, and humor. In general, the boys evidenced an interest in reading magizines, while the girls showed a greater interest in stories in books. Both boys and girls read paperbacks to about the same extent.

Frequently one wonders why the book reading interests displayed by elementary children seemingly give way to television viewing and the use of other forms of mass media of questionable value. Boutwell (1964) discussed several factors that appear to act as deterrents to the book reading habit. First was the poor image that books develop in the mind of the young adolescent, since they become so widely used as textual materials in the formal education process. Second, was the poor "packaging" of adolescent books. As soon as the book jackets are removed, the dull covers fail to intrigue. Third, book reports still are required. Children may love to read, but they dislike writing about the book. The fourth deterrent, Boutwell said, was class study of the classic; the fifth was the non-ownership of books. A child who owns a book is more likely to read it. Paperbacks, then, can make a major contribution to the secondary school reading program.

Vaughan (1963) investigated the reading interests of eighth-grade students attending a technical junior high school. As a group, boys preferred mystery and science, with invention, history, and biography also being important; while girls preferred stories relating to home and school, novels, and mystery. In a list of twelve categories, poetry was ranked last by the boys, and eighth by the girls. For both boys and girls, there were greater divergencies of interests between sex groupings than between intelligence groupings. Girls were interested in stories of love, humor, and mystery, while the boys preferred mystery and science. The largest group owning library cards was the average group. The dull boys and girls showed a reluctance to read or to use library cards. Vaughn stated: "It should be a matter of concern to the classroom teacher, as well as to the parents of these children, that the junior high student makes little effort to take advantage of library facilities that are within walking distance of his home."

The leisure-time magazine reading preferences of a group of middle-class ninth graders in a large city suburban area were studied by Adams (1962). The magazines listed were placed in categories and ranked in order of preference. Correlations were derived between rank and intelligence. Data indicated that there was no apparent correlation between intelligence and leisure reading interests. It was found that the leisure time reading preferences indicated tremendous interest on the part of the students in "sex, sensationalism, and escape." "It seems," Adams said, "that in our struggle to develop reading skills we have neglected to build . . . a value system that would allow them to discriminate." It was also found that interest, rather than ability, determined what was read, for no longer could one associate the reading of comic and movie magazines with low ability students. "It is apparent . . . that average as well as high ability students, once out of the ever watchful eye of the teacher, receive great personal satisfaction from reading magazines of questionable value."

Stewart (1964) reported a study of the content and readership of teen magazines. Through a questionnaire, Stewart checked into the interest of a cross section population of 432 high school students in the types and content of magazines commonly read by teenagers. Adult-type magazines outclassed in popularity those written particularly for the young adolescent. In grade seven, the girls read most extensively *Life, American Girl,* and *Saturday Evening Post.* After grade eight, *Seventeen* replaced the *American Girl.* From grades seven through twelve, the boys' most popular magazines were *Life, Saturday Evening Post,* and *Boy's Life.* On the whole, the boys considered the teen magazines as trash.

Also using a questionnaire technique, Blakely (1958) investigated the extent to which seventh graders read comic books, and the types and quality of those read. Over 300 students were included in the study. Each student indicated the titles of comic books read within the preceding week and, from these titles, a frequency score and a "comic book type score" were computed based upon the classification scheme of the Cincinnati Committee on Evaluation of Comic Books. These scores were then correlated with measures of intelligence, personal adjustment, and reading achievement.

Blakely reported that the students who differed in both extent and type of comic book reading did not differ correspondingly in reading ability, achievement in language and spelling, general school achievement, personal adjustment, or intelligence. Fifty-five per cent of the boys were in the "moderate" and "heavy" reader categories, as against 48 per cent of the girls.

This study did not purport to disprove the existence of the ills frequently ascribed to the reading of comic books, but it did indicate that those who deplore the reading of this type of content should supply evidence of its deleterious effects.

Whitman (1964) investigated the reading interests and experiences of an intellectually select group of English students. Questionnaires asking for the most significant book read and the reasons for reading it were sent to the finalists of the 1961-1962 NCTE Achievement Award Program. Titles were classified from 975 replies. A total of 416 different titles were cited, 56 per cent of which were novels and 37 per cent, nonfiction. Forty books were listed five or more times and were considered of uniformly high quality. A number of these books have been considered quite controversial, yet apparently they had something of significance to say to these young people. The reason given most frequently for the choice of a particular book was that its content was instrumental in influencing attitudes, values, or thought (46 per cent), while the literary quality was indicated as a reason in only 21 per cent of the time. Whitman indicated that, in selecting books for adolescents, one should choose those that will have a "direct impact on their minds." The content should be meaningful and highly relevant.

Woolcock (1963) surveyed the reading habits and skills of another group of superior students. Subjects were 85 girls in grades nine through twelve attending the Hunter College High School where the median I.Q. was 147. During the month preceding, these students indicated that they had read voluntarily an average of three books and three magazines. Their choices of books read were influenced to a greater degree by their classmates or friends than by their teachers. In turn, a high percentage tried to influence others to read a book that had been found pleasurable. Woolcock concluded that " . . . an important part of the pleasure and value of reading a book lies in the opportunity to discuss it with others." Outside of word knowledge and ability to skim, these students seemed confident of the reading skills they possessed.

To secure information about the reading interests and informational needs of high school students, Shores (1964) analyzed the responses of over 6000 students to a questionnaire having nation-wide circulation. In particular, Shores wanted to ascertain what students would like to read about, to ask about, or to look up. With regard to the first, his data disclosed that the greatest interest was shown in literature (57 per cent), especially fiction. Fourteen per cent were interested in social science; about the same number were interested in science-type materials. Twenty-eight per cent of the students had questions in the area of social studies for which they desired answers, 20 per cent in the area of personal and social adjustment, and 17 per cent in science. Twice as much reference work was required of the students in social science as in science or literature.

Shores concluded that youth "are not necessarily interested in asking about the same things that they want to read about." Thus, their reading interests are not identical with their informational needs as they are perceived by young adolescents. He recommended that content in the subject areas be more carefully selected so as to make it more relevant to young people.

The leisure reading activities in the secondary schools of Alberta were investigated by Campbell (1964). A province-wide questionnaire study involving 7700 students and 1100 teachers was carried on in the junior and senior high schools to assess the strengths and weaknesses of the leisure reading program. Although the specific nature of the program was not described by Campbell, his findings indicated that the program was productive of growth toward reading maturity. Year to year changes in the type and quality of material read indicated increased preference for adult-type books and less for juveniles and comics. About ninety per cent of the students reported that reading was a pleasurable activity. The teachers reported that they preferred a controlled or directed program of leisure reading to one that permitted unstructured reading. On the basis of his findings Campbell recommended books whose content was more realistic and relevant to the needs of young adolescents and, thus, provided a more adequate bridge between junior and adult novels. The writer also recommended that, in all secondary schools of Alberta, consideration be given to the institution of a developmental reading program on all grade levels.

In an extensive nation-wide study of high school English programs reported elsewhere in this summary, Applebee (1966) inquired into the reading interests of high school students and the extent of their reading. Applebee's findings show that only 27 per cent of the students found the school library adequate for their personal reading. The students also indicated that their interests were as much influenced by what their friends read as they were by what their teachers would like them to read. Found also was a decline in the reading of books traditionally found on required English reading lists (e.g., *The Scarlet Letter*) and an increase in books of the type that appeal to the present day high school student.

A number of studies in the general area of reading interests have to do more specifically with the reading patterns and habits of adolescents. Schramm, Lyle, and Parker (1960) studied patterns in newspaper reading of children in grades two through twelve in the San Francisco area. They found that by grade eight, newspaper reading had become important, with 82 per cent of the girls and 73 per cent of the boys reporting that they read the newspaper several times a week. By grade ten 90 per cent of the boys reported reading the newspaper, as against 81 per cent of the girls. However, when asked which medium they would miss most if they had to do without it, 58 per cent of the boys and 45 per cent of the girls reported that it would be television. Only eleven per cent of the boys and three per cent of the girls reported that newspapers would be missed most. When they were asked what sections of the newspaper they would miss most, the twelfth-grade girls reported that they would miss local news, front page, comics, and columnists. The boys reported missing sports, comics, local news, and the front page. Foreign and national news was not of much importance on any level to either boys or girls. Intelligence appeared to bear some relation to newspaper reading in that the brighter students were much more likely to read newspapers than the slower ones.

Littrell (1965) studied the newspaper and magazine reading interests of high school students. His subjects were drawn from two Kansas high schools in grades nine through eleven. With newspapers, Littrell found that boys preferred reading the front page and sports, while girls listed the "advice" columns and front page as their first choices and sports, last. The editorial columns were not important to either boys or girls. Their preferred magazines were *Life, Saturday Evening Post, Readers Digest*, *Look*, and *Time*.

Zamchick (1960) was interested in the paperback buying habits of young readers four through eleven, as reflected in purchases through the Teen Age Book Club. As might be expected, the superior students purchased more books than others, and girls purchased more than boys. Interestingly, Zamchick observed that the buying patterns did not necessarily reflect the tastes of individuals, since mass buying seems to be a strong motivating factor.

The fact that reading interests and tastes are quite individual matters was evidenced in the results of an investigation carried on by Jungeblut and Coleman (1965) with over 4000 students in grades seven through nine. In an attempt to locate reading selections that would have interest and appeal to the students on each of the three grade levels studied, the students were asked to rate, on the basis of style and content, excerpts from 102 selections of potential interest and worth. On the basis of over 2900 returns, the writers found that the ratings varied according to the individual interests of boys and girls as well as to grade levels. They concluded: "Students' ratings indicate that the style and content of 102 selections . . . appeal differentially to seventh, eighth, and ninth graders."

In a similar vein, Strang (1963) made a very pertinent observation after summarizing 16 studies of adolescent reading interests. Strang observed that the reading interests and tastes of individual students may not correspond to group trends and characteristics. The only way to gain information about the reading interests of a particular individual was to study *that* individual. This admonition should make one cautious about applying to a given student the results and findings that come from studies of the interests and characteristics of large groups of students.

Frequently, public libraries report book circulation among young readers and call to one's attention that consistent increases are indications of a healthy reading climate. Suspecting that library book circulation may not necessarily indicate the extent of library book reading, Karlin (1963) investigated the relation between these two conditions. Over a two-month period, a careful record was kept of the books borrowed and returned to the library by a sample of pupils in grades three through nine. On returning a book, the reader was asked when it was borrowed, and whether it was read completely, in part, or not at all.

Karlin reported that, in grades seven through nine, the boys borrowed on an average of 1.5 books, while the girls borrowed an average of 1.4 books over the two-month period. Thirty-eight per cent of the books borrowed by the boys and 44 per cent of those borrowed by the girls were read completely. Thirteen per cent of the books were not read at all by the boys, against 29 per cent by the girls. Forty-nine per cent were partially read by the boys; 27 per cent by the girls. To a considerable extent, Karlin's suspicion was justified. He also found that the books borrowed for free-time reading were more likely to be read completely than those chosen for reading during the scheduled library period. When the students were asked the reasons for partial or non-reading of a book, they replied that they lacked time, were disinterested in reading, dissatisfied with the book, or had difficulty in reading. Karlin concluded that the "results of this study suggest the possibility that library circulation figures are at the best a very rough measure of library book reading."

5.2 *Reading habits and interests in relation to other factors*

A number of researchers have been interested in the relationships that might exist between reading interests and habits and such factors as intelligence, sex, general reading ability, environmental factors, and leisure time pursuits. A group of studies in these areas will now be reviewed.

Summarizing 20 investigations of the reading interests of junior high students, Sizemore (1963) concluded that the sex differential was a major determinant of choices of reading materials made by students on this level. As far as intelligence was concerned, evidence showed that both bright and dull students, as well as both good and poor readers, tended to select topics and titles that were similar.

Stanchfield (1962) was particulary interested in the reading interests of boys in grades four, six, and eight. Selecting 51 boys at each grade level with I.Q.'s between 90 and 120 and who represented equal numbers of superior, average, and poor readers, the writer conferred with each concerning his reading interests.

Stanchfield found strong similarities among the three grade levels in terms of interests, intelligence, and reading ability. For example, the coefficient of correlation between grade levels and interest categories for grades four and six, four and eight, and six and eight were .92, .94, .89, respectively. Even stronger degrees of similarity were found between reading choices and levels of reading achievement. As was indicated by other studies of a similar nature, Stanchfield found that the boys in this investigation were "highly interested in unusual action-filled experiences, and not very much interested in families and commonplace happenings." One of the strongest impressions gained through the interviews with the low achievers was their increasing hostility and defensiveness toward reading as they progressed from grade four to eight. Certainly the study indicated the need for early diagnosis and correction of reading problems, as well as for easy-to-read books in a variety of interest areas for children at the lower end of the reading continuum.

Hughes and Willis (1965) carried out a very comprehensive study of the personal reading habits, attitudes, home background, and school histories of a group of 58 seventh graders whom the authors identified as "extended readers." These were students who were competent readers and who read as an "integral part of their daily life." They were inclined to refer frequently to something they had read and to use ideas gained from reading. In incidence, they comprised six per cent of a total of 1000 students in four junior high schools. These students were compared with a group of seventh graders, equally competent in reading ability, of the same sex and intelligence, but for whom reading was not a major concern.

Comparisons between the two groups of competent readers showed some striking differences. The extended readers were more confident and positive in their self-concepts and they were more realistically oriented to the school situation. Among other things, the parents of those students were themselves extensive readers and were scholastically ambitious for their children. More intra-family activities were carried on.

However, the questions raised by this study were possibly as significant as those answered. Hughes and Willis asked: "Why have so few students (six per cent) from a universe of approximately one thousand who read on the average somewhat above normal, acquired the habit of using reading as an integral part of their personal way of life?" They queried further "whether or not the schools over-emphasize training in reading skills to the detriment of building interest in reading? To what degree is outside reading recognized and integrated in class work?" In short, they are asking whether the reading program is giving as much attention to promoting development through reading as it is to promoting growth in reading.

Hemmerline and Hurst (1961) investigated the possible influence of leisure time activities, including reading, on school achievement of 200 sophomore students. On the basis of questionaire returns, it was found that daily leisure reading activities amounted to an average of 33 minutes for boys and 25 minutes for girls, as compared to 2.3 hours of television viewing for boys and 1.6 hours for girls. The extent of leisure reading time did not seem to be related to academic success.

Sekerak (1957) made a detailed analysis of the findings of an investigation into the relationships between reading comprehension and intelligence of 366 junior high school students and their use of the several media of mass communication (television, magazines, radio, books, and motion pictures). The summary of the interrelationships indicated they were low positive but, in general, statistically insignificant. Sekerak concluded that television and radio have appeal because of their wide range of offerings rather than because of the ability or inability of the individual to comprehend. There was a consistent tendency for students with high intelligence to spend more time with the reading type of media—magazines, books, etc.,—than with the listening and viewing types. In addition, students with above-average intelligence tended to spend more time in contact with all types of communication media than those who were below average.

The elements of appeal in recreational content read by junior high school students were investigated by Soares (1963). Over 1600 students were asked to read sixty stories and rate them in the order of preference. The top 15 were analyzed on the basis of 33 elements to find those having particular appeal in terms of the readers' intelligence, grade, and sex. The major findings were in accord with those of other similar studies. Soares did find, however, that story elements dealing with bravery and cowardice had more appeal to these students than such factors as plot or character. He found, too, that the interests of eighth graders tended more toward those of ninth graders than seventh graders.

Ever since the advent of television, there has been a controversy over its effects on various aspects of child and adolescent development. In an attempt to discover whether the extent of television viewing was related to such variables as reading, school achievement, intelligence, personal adjustment, and occupational rating of the parents, Scott (1958) collected from 407 fifth and sixth graders information relative to the television programs they had actually watched over a two-week period. The upper 27 per cent of the population in total TV viewing time was compared with the lower 27 per cent. Scott's data showed that the range in total viewing time for the "upper" group was 22¾ to 69½ hours per week; for the "lower" group, it was from none to 9¾ hours. The lower group earned significantly higher scores on tests of arithmetic, reading, and total school achievement than the higher group. Although there were no significant differences between the groups in personal and social adjustment or leisure-time interests and activities, the high viewing group had lower intelligence scores than the low viewing group (104 vs. 110), and came from homes that rated lower on a socio-economic scale. Scott concluded: ". . . if scholastic achievement is valued above TV viewing, as it must always be, *the children must be introduced to planned television viewing*," in terms of both quantity and quality.

Since 1949, Witty's annual summaries of television viewing have provided comprehensive information about the extent of TV viewing and the kinds of programs currently having appeal to children and adolescents. In 1964, Witty and Melis (1965) summarized the results of their most recent study and made certain comparisons with other studies reported since 1949. For example, they found that, in the 15 years since these studies were initiated, the average weekly amount of time spent by high school students in TV viewing was from 12 to 14 hours. In 1964, the average was 12 hours. About forty per cent of the students who responded to the questionnaire stated that they received help from television in their classwork, particularly in speech, discussion, and history. Twenty-five per cent of both elementary and high school students indicated that a television presentation had led to the reading of certain books, yet the amount of time devoted to voluntary reading in relation to television viewing was noticeably small—one hour per day versus three hours for TV. The authors added: "Despite probably small gains in the amount of reading among children at present as compared with an earlier time, the picture is by no means a bright one since many children do not read widely."

6. *Personnel*

Several of the studies (Thornton, 1957; Baughman, 1960; Burnett, 1966) reported in other sections of this summary have referred to the limited and inadequate training of the personnel responsible for conducting a secondary reading program. Others (Geake, 1961; Smith, 1963; Peyton & Below, 1965) have reported that difficulties in securing trained personnel stood as a deterrent in organizing a reading program or as a reason for discontinuing a program that had been in existence. Several additional studies related more directly to staff problems are summarized below.

In an effort to determine the extent of need for specialized assistance in the secondary school reading area, Heitzman and Bloomer (1965) conducted a state-wide study in New York State. Questionnaires relative to current and projected needs for reading teachers and consultants were sent to 100 randomly selected superintendents of schools. Returns submitted by 69 school officers constituted the basis for projected state-wide needs, current (1960-61) and within the next five years (1961-66). At the time the study was made, there was an estimated need for 1467 elementary remedial reading teachers, 1193 secondary remedial teachers, and 291 elementary consultants. The five-year projection called for an additional 583 elementary remedial reading teachers, 4 secondary remedial teachers, and 4 elementary consultants. It is interesting to note that none of the superintendents indicated a need for secondary consultants. Although the findings reported in this study are related to staff needs early in the 1960's, they do point out several things of current significance. They show the demand for special reading teachers and consultants, a demand which has been intensified since this survey was made as a result of the availability of government funds for special reading programs. There is an indication, too, that administrators are less aware of the need for specialized reading services on the secondary level than on the elementary.

The superintendents were asked also to indicate the kinds of training they felt necessary for a secondary remedial teacher. Of eight different areas of training suggested, the superintendents desired teachers trained in secondary reading methods, diagnostic and remedial teaching, psychology of learning, measurement and evaluation, and practicum in remediation. Several of the respondents believed that a knowledge of elementary reading methods would also be highly desirable.

Although reported in 1955 the recommendations growing out of a questionnaire study conducted by Helen Robinson (1955) into the qualifications for teachers of remedial reading are as appropriate today as they were when originally made. Questionnaires were mailed to members of the then existing National Association for Remedial Teaching, inquiring into the qualifications desired of those doing work in remedial reading. Eight qualifications were listed as follows: *1*] a stable and mature personality; *2*] experience in classroom teaching; *3*] an educational background including work in educational psychology, mental hygiene, intelligence testing, and case-study techniques; *4*] an understanding of a developmental reading program; *5*] observation and practice in taking a case history, in using and interpreting reading tests, in using a variety of procedures for teaching reading readiness, word perception, and comprehension; *6*] familiarity with materials and instruments used on correcting reading handicaps; *7*] preparation for appraising reading progress and preparing case reports; and *8*] familiarity with important research in the field.

The functions and responsibilities of a reading specialist were discussed by Stanchfield (1964). Stanchfield found that reading specialists are responsible for making evaluation surveys and, on their basis, developing new and better programs. They work with the classroom teacher to improve the quality of instruction, they organize in-service workshops and conferences, they counsel individual students and confer with parents. It was also noted that organizational provisions for reading instruction, in general, fell into three patterns: "basic reading" classes for students of at least average intelligence retarded three years or more in reading ability; "reading improvement" classes for students of at least average intelligence who are from one to two years retarded; and "power reading" classes for those who are above average in capacity and reading ability and who elect to take a course designed to improve their skills of comprehension, critical thinking, and speed.

An extremely informative investigation of the training of high school teachers to deal with reading in their classes, and of the reading needs and instruction received by high school students was carried out by McGinnis (1961). Data were collected from 570 Michigan high school teachers concerning their pre-service preparation for teaching reading. Eighty-two per cent indicated that they were taught in college courses that reading skills could be improved, but fewer than ten per cent were taught how to improve them. Approximately 75 per cent were taught to anticipate a wide range of reading ability in the classes they would be teaching, but only about one-fifth were instructed in how to adjust their material and procedures to the reading levels of their students. Fewer than one-third were shown how to teach their students how to read a chapter effectively. Ninety-six per cent felt that their school would benefit from a "reading laboratory in which developmental reading is provided." It seems apparent from these responses that the teachers felt their pre-service training was less than adequate in equipping them to cope with the kinds of reading situations they actually were facing.

This fact seems to be substantiated in the same study by the responses of over 1000 college freshmen regarding the reading instruction they had received in their high school classes. Sixty-one per cent said that their teachers did not show them how to improve their reading skills, 68 per cent said they were not taught how to read a chapter, and 71 per cent were not taught how to concentrate. Perhaps it was not unexpected to find 90 per cent indicating that their teachers required all students in the same class to read the same text and do the same kind and amount of work. Eighty-three per cent said that they would have welcomed a high school reading course.

McGinnis drew several conclusions from the data that are worth noting. First, there is an obvious need in high schools for developmental reading training with particular reference on how to use textual materials more effectively. McGinnis also suggested that college methods courses be reorganized so as to focus attention to needed areas of training, particularly as they relate to reading in the various content fields. Finally, even though a reading laboratory is established, " . . . classroom teachers should assume responsibility for developmental reading in their subject matter fields."

Braam and Roehm (1964) conducted a questionnaire study with high school teachers with respect to their understanding and awareness of the reading situation in the schools in which they were teaching. Seventy teachers in nine subject areas in 15 schools responded to a questionnaire eliciting responses having to do with their understanding of the skills necessary for successful reading, the awareness of the reading strengths and weaknesses of their students, and the value of their pre- and in-service training in helping them to understand their students' reading strengths and weaknesses.

The responding teachers listed nearly twice as many skills in which they considered their students deficient as the number in which they considered them strong. The writers concluded: "Either a) students have a much larger number of skills in which they have inadequate competence than in which they have adequate competence, or b) teachers are far more aware of students' incompetencies than they are of their competencies." The three areas in which the teachers considered skills necessary for successful reading were comprehension, critical reading, and vocabulary. From the teacher's viewpoint, the three areas in which they considered their students most competent were in comprehension, vocabulary, and reading for details and specifics. The three areas in which they considered the students least competent were comprehension, reading rate, and vocabulary. As was stated above, about twice as many deficiencies were noted as strengths.

It was disconcerting to note that Braam and Roehm found it necessary to conclude from their data that neither pre- nor in-service training in the teaching of reading appeared to increase the teachers' awareness of the skills necessary for successful reading or of their students' reading strengths and limitations. Furthermore, the existence of a reading program or the presence of a reading specialist in the school did not appear to be effective in producing an awareness of either needed skills or student strengths and weaknesses. The writers concluded that communication between reading authorities and practitioners was apparently lacking in effectiveness.

Patterson (1958) also investigated the role of the classroom teacher in helping students improve in reading. Patterson submitted a two-part questionnaire to a group of teachers in an eastern high school. The first part of the questionnaire dealt with their reactions to a series of statements dealing with their participation in a school-wide reading program (e.g., "One of the classroom teacher's important functions is to help students build good reading habits and skills"). The second part assessed their reactions to the value of 23 suggestions for helping students improve in reading (e.g., "Help students to establish purpose for their reading").

Running through the responses of these teachers were two major concerns. First, they felt that attention to reading was something extra added to the teaching of subject content and, as one teacher responded, " . . . I cannot spare time for improvement of study techniques by my pupils." The second was the lack of understanding as to what to do to improve reading competencies, were time available, illustrated again by the same teacher above saying, "I am not sure that I know how to tell them to improve."

Patterson's conclusions were very appropriate. He said that classroom teachers did not feel competent to assist students with reading because they believed specialized training was required. This feeling was amplified frequently by reading specialists who gave the impression that "reading ought to become a major classroom objective to the neglect of subject matter emphasis." Rightfully, Patterson wrote: "Teachers' relation to the reading program, although requiring emphasis, is nevertheless similar to their responsibility of helping students use English learned in the English classes, typewriting learned in the typing classes . . . or any other skill wherever learned."

That content area teachers feel the teaching of reading necessitates adding to an already overloaded course of study was a matter discussed by Catterson (1965). In writing about the teaching of study abilities in the context of subject content, Catterson pointed out that the current need was not for more subject matter teaching, but a kind of teaching that helps the learner develop a more effective approach to learning. This was not *something* to teach, but a *way* to teach, " . . . a way of teaching which advances not only the student's knowledge of subject matter but his ability to learn other subject matter independently and at will. The aim, then, is to unify knowledge learning and the skills of acquiring knowledge."

From the results of a five-state survey, Simmons (1963a) discussed, in particular, the supervision and administration of secondary reading programs. He reported on the basis of returns from 127 schools, that 56.6 per cent of those in leadership roles had no formal training in the teaching of reading. Of those who had training, only ten per cent had been in specific courses related to secondary reading. Only five per cent of the schools in the sample reported that their program supervisor held a reading specialist's certificate. Simmons reported that the persons most responsible for directing the reading programs were the English teachers and the principals. He added: "This survey indicates a naive faith that English teachers are qualified, in and of themselves, to handle the reading problems of the schools. Actually, the English teacher is, generally speaking, quite limited in his approach to the teaching of reading." In spite of the often repeated "Every teacher a teacher of reading" cliche, this study gives potent support to the need for trained and qualified reading supervisors who can give adequate help to the classroom teacher so that he may in truth become a teacher of reading.

7. *Summaries of research on secondary school reading*

A number of excellent summaries of research and reviews of significant articles in the area of secondary school reading have been prepared by H. Alan Robinson and Dramer (1960a, 1960b, 1961), H. Alan Robinson and Muskopf (1962, 1963, 1964, 1965), Muskopf and H. Alan Robinson (1966), Summers (1964b), Schneyer (1964), Traxler (1957), Early (1957), and Jewett (1957). Beginning with the Summer 1962 issue of the *Journal of Developmental Reading,* Summers (1962) began publishing a bibliography of doctoral dissertations in elementary and secondary reading which became the following year, and since then, an annual annotated bibliography of doctoral studies (Summers, 1963, 1964a; Summers & Hubrig, 1966a, 1966b; Summers & Laffey, 1966, 1967a, 1967b). To these should be added, of course, the well known Gray's Summaries of Investigations Relating to Reading and, since 1962, the Harris' summaries, appearing annually in the February issues of the *Journal of Educational Research.* In addition, there are the equally well known Helen M. Robinson *et al.,* Summaries of Investigations Relating to Reading, appearing between 1962 and 1964 in *The Reading Teacher* and, beginning in 1965, in the winter issues of the *Reading Research Quarterly.*

8. *Summary*

Over 180 studies and reports selected, as indicated in the Introduction to this report, have been reviewed in the seven preceding sections. On the basis of these studies, an attempt is made to bring together relevant generalizations, conclusions, and implications with respect to practices and trends in reading on the secondary school level.

Several regional and state-wide studies indicate that there is a decline in reading growth beginning at about the age of entrance into junior high school. This lag in growth is not only relative to that maintained throughout the primary-elementary years, but also lower in relation to the normal and consistent increase in mental age. That this situation need not exist is indicated by the many studies showing that students on all levels from the dullest to the brightest showed significant improvement when reading instruction, either developmental or corrective, was provided. The assumption might be made that the negative acceleration on the secondary level is even greater than is apparent, since the test norms with which comparisons were made were based on existing rather than hypothetically ideal levels of achievement.

Studies indicate that a number of factors and conditions, operating either singly or in combination, may account for this disturbing condition. The most apparent reason is that there is little concerted effort to provide systematic reading instruction beyond grade six as is provided on the earlier grade levels. In fact, one major study showed that, of the several language arts areas, reading received the least amount of instructional time. Although research shows the existence of more programs on the junior high than on the senior high level, even there they are frequently programs in name only, having narrowly conceived objectives and including only a small segment of the total school population.

Another factor that shows up time and time again in the studies as a reason for the absence of programs or for their questionable quality is the absence of qualified teachers and supervisory leadership. Even though administrators realize the need for continuous reading instruction on the secondary level, there are not enough trained leaders to assume responsibility for organizing and conducting a program, nor are there teachers who are prepared to fill the specialized teaching positions or to assume the responsibility for promoting needed competencies within the context of the subject matter they are teaching. Curricular revisions and certain changed points of emphasis in programs of teacher training are required to fill this void.

Research and action studies describe various instructional patterns and program types on the secondary level. Most common are remedial or corrective classes with pupils usually assigned on the basis of reading test scores. In some cases, students with special needs are cared for through special school services or clinic programs. A number of reports have been made of various types of developmental programs that include students other than those with reading handicaps. In some cases, these programs extend systematic instruction from the elementary grades through grades seven and eight through regularly organized reading classes. In other cases, it is provided through literature classes with reading as a point of emphasis. In still other cases, units on reading, vocabulary, and rate of comprehension are included in English or language arts classes.

The approach with recognized promise is one providing for the close integration of reading and study with the teaching of the various content areas. Since the teaching of content assumes that the learner will need to purposefully select, comprehend, organize, evaluate, and apply ideas, generalizations, and principles—all of these being reading competencies—the close alliance of subject matter and reading is a natural and an obvious one.

Reports of broadly conceived, sequentially developed, school-wide (in terms of both staff and students) programs of practical worth, carried out by well trained teachers, are noticeably absent. However, it is possible to draw from isolated studies, where certain organizational plans or procedures are being carried out on an experimental basis, conclusions and generalizations that appear to have merit.

In the first place, a reading program should have sufficient breadth to provide for the needs of all students—the reader with handicaps who reads below his potential; the reader who can read but who has never discovered the pleasure or importance of reading; the average, normal reader who is in need of continuous, sequential growth toward increasingly higher levels of maturity; and the mentally accelerated who needs to have the opportunity to apply his competencies to challenging content.

It should also make provision for all areas of reading growth. These include needed basic competencies in word perception and comprehension, vocabulary and language enrichment, in critical thinking and analysis based on reading, in techniques and procedures required for effective study, in increasing rates of comprehension, and in developing broad interests and sensitive tastes for reading.

The program should involve all staff members whose teaching area requires reading and study. The responsibility for a program with breadth and scope cannot be turned over to one person or group of persons. Frequently it is assumed that, because the English teacher is a teacher of language, the full responsibility for organizing and conducting a reading program should be in his hands. As several have pointed out, the English teacher ordinarily is no better trained to teach reading and study skills than is the history teacher and, were he trained, it would be to teach the reading of literature and not the reading of science, mathematics, or social studies.

The teaching of reading within the context of the subject matter area holds promise as an approach to instruction, as was mentioned earlier. It is here that reading and study procedures may be directly related to the demands of the particular area. Reading objectives and purposes, contributing as they do to effective study, may be taught and used in a functional manner. The vocabulary of the particular subject and the specialized study skills needed in the different subject areas may be taught directly as needed rather than in a general study course or unit with the expectation that they are transfered automatically to the place where they are used.

Subject teachers have been reluctant to assume responsibility for teaching the reading-study skills characteristic of their area for several reasons. In the first place, pre-service training courses have apparently failed to include content dealing with the competencies in need of development for effective reading in science, mathematics, or history. Teachers have also assumed that the teaching of reading involves the addition of something extra to an already overloaded course outline rather than being an inherent part of the teaching process—a *way* to teach rather than *something* to teach. Studies indicate that it is possible to effect reading improvement if teachers are willing to try and if they have adequate help and supervision.

Researchers have both stated and implied that regimentation of instruction in a given content area is one of the major barriers to the solution of the reading problem on the secondary level. Teaching the same content, from the same text, by the same method to a heterogeneous group of students, disregarding their learning rates, their levels of reading, and their unique interests can hardly be productive of maximum attainment, regardless of how that attainment is measured. From at least one study, it seems evident that although teacher training courses have alerted students to the fact that a wide range of individual differences is to be expected in any class, they have failed to show how instruction may be differentiated to meet the diverse needs of individual students. The responsibility of those organizing both pre- and in-service training programs so as to perform their stated function more adequately seems clear.

The relationship between the reading ability and measured achievement in the various content areas is indicated in several of the studies. Vocabulary and level of comprehension appear to be particularly significant, while study skills also contributed to academic achievement. However, it is to be emphasized again that effective reading and study in each subject area requires the use of certain abilities related in varying degrees to that particular area.

The literature seems to indicate clearly that the handicapped reader has received a major share of attention over the last decade, as is indicated by the number of remedial and corrective reading programs in relation to developmental programs as well as by the number of studies and reports of the use of corrective and remedial techniques and materials. Many of the reporters use the terms corrective and remedial loosely, failing to differentiate between them. It appears in many cases that what is termed remedial is, by definition, corrective.

Many excellent suggestions for organizing and conducting programs for the handicapped reader are found in the reports. Mention is made of the need to select carefully the students who are to receive special help. In certain cases, the primary criterion for inclusion in a special program is a reading test score which places a child on a level below his grade in school by certain predetermined limits. Using the discrepancy between school grade and level of achievement as the sole criterion results in overlooking the presence of related factors, particularly intelligence. In this case, one bypasses the high potential child who is achieving at grade level, but who should be achieving on a level considerably above where he is in school. At the same time, one admits into the program children with limited capacity who are already achieving as well as could be expected.

In other cases, pupils find themselves in corrective groups as a result of inflexible scheduling procedures or are placed there in a mandatory manner. As a result, a corrective teacher finds herself with a group of disinterested, unmotivated, resistant students for whom reading holds little purpose or value. Several of the studies pointed out that mandatory placement of students in corrective programs and the application of uniform requirements are not productive of maximum results. The learner should sense the need and see the value of the program and must want to take advantage of its offerings if the child is to show gains worthy of the time and effort expended.

Literally all of the reports dealing with special programs for the handicapped reader have stressed the fact that frequently the difficulties and problems besetting such a student are multi-faceted and the approach to correction must be multi-dimensional. Physical, social, and emotional problems may be involved and the program of correction or remediation must be as much concerned with these problems as with reading, in some cases, more so. Several reports emphasized the significance of psychological problems, pointing out that a program must meet the problems of adjustment and develop an improved self-concept at the same time as it deals with reading skills and abilities.

Moreover, the reading problem itself may be multi-faceted. The difficulty may be word perception, comprehension, rate of comprehension, study techniques, or disinterest. Consequently, a program of assessment or diagnosis must precede the program of correction so that what is done is specifically related to the learner's needs as well as to his interests. Frequently, too, a handicapped reader is seen only as an individual in need of skill development because this seems to be his glaring deficiency. In many cases, he has already been "skilled and drilled" by prior teachers and he is at the place where more drill pages and skill exercises only add to his dislike for reading. The reluctant reader needs first to experience the pleasure and purpose of reading. Only then will he be willing to undertake the practice necessary to increase his competencies. At least one writer has raised the question as to whether too much time is being spent on skill development.

Both by direct statement and by implication, the point was made that the younger the child at the time corrective help is given, the greater are the chances for his rehabilitation. Not only does the reading problem become more deeply entrenched, thus making it more difficult to deal with, but the prolonged failure is harmful to the learner's self-concept, and his negative attitude toward reading becomes more firmly fixed as an integral part of his personality.

Other reports pointed out the need for a sustained program of correction, either over a longer period of time or at intervals after the initial program is terminated. A short term, "crash" program does not seem productive of maximum or permanent results. Moreover, a program's measure of value is not in terms of an increase of post-test scores over pre-test scores, or in terms of a favorable comparison of an experimental with a control group, but in terms of how well the learner applies his learnings to functional reading situations, shows increased interest in reading, and is more critical of what he reads.

One can never be quite sure whether reading problems are the cause of school drop-outs or whether both reading problems and failure to complete school have common precipitating causes. The studies do show that low reading achievement is associated with school drop-outs and, likewise, students who drop out of school early frequently have reading difficulties. Although many reasons may exist for early school termination, students feel that difficulty with reading is one of the major causes. There seems to be good reason to believe that corrective reading programs provided on the elementary grade level or early in junior high school would prevent much of the drop-out problem with its ultimate consequences of delinquency and unemployment.

Related in many ways to what has already been said are findings and conclusions from numerous studies of the factors contributing to students' success in reading. Intelligence is one factor that has been researched thoroughly. Well established is the fact that verbal intelligence is more closely related to reading achievement than non-verbal, but, even then, its relationship is not so high as to exclude many other factors such as those to which reference has already been made. Frequently overlooked is the implication of the limitation or lack of validity of a verbally saturated measure of intelligence for those students with a reading disability. The spuriously low results obtained from such a test may be more indicative of a language than a mental handicap. One study indicates that there are cognitive factors bearing a relation to reading ability not measured by the conventional intelligence test.

Regardless of what one may conclude about the relation between sex and reading achievement on the primary level, it does not appear to be of consequence on the secondary level. Where achievement differences do appear between secondary level boys and girls, they are more likely to be accounted for by such factors as motivation, interests, materials, and instructional procedures than by sex *per se*.

Social class and its relation to reading success or failure has been researched, also, although studies relative to this factor are more numerous on the primary-elementary levels than on the secondary. Social class is established as a factor related to reading achievement insofar as it reflects such things as young peoples' attitudes toward school and reading, their concept of self, their level of aspiration, and their background of information. There is evidence that strong programs of preventing reading disabilities and reading improvement would salvage many young people of the lower socio-economic levels from the ranks of the dropout and the delinquent.

Literally any text in reading methods stresses the importance of reading purposes or objectives as conditioners of reading effectiveness on all levels. One major study adds additional substantiating evidence of this fact. Mind set or purpose determines the adjustments that one must make in rate, the depth at which one will read, the elements to be selected or rejected, the type of organization used, and the specific reading techniques to be employed. It is possible to teach students to identify reading purposes, and direct instruction is more effective than incidental or indirect teaching.

It is interesting to note that bright students with a measured "anxiety" level average or above tend to achieve on a higher level in reading, although not in other subject areas, than those with a low anxiety level. One might infer from this that the student who is concerned over his progress in school and is anxious to achieve will stand greater chances of achieving on a higher level than one who is unconcerned. Moreover, because of the operation of social or other pressures, it appears that greater significance is attached to reading success than to success in other subject areas.

When it comes to materials, of one thing research seems to be clear—there is no evidence to support the claim that there is any one piece of material, gadgetry, or method of teaching that will insure success in learning to read or that will guarantee continued progress. On the contrary, the recommendations from numerous studies are for the use of a variety of materials and procedures whether one is concerned with corrective or developmental teaching. Since any program should be carried out in close relation to the learners' interests and needs, and since these will vary widely from pupil to pupil, even of the same age and grade, the rationale for this generalization is obvious.

With respect to specific pieces of commercial equipment in the way of reading pacers, rapid exposure devices, films, and the like, research does not give a definitive answer concerning their value. Possibly a safe generalization is that, although some of these devices may facilitate certain aspects of a reading program, they are not essential to its success. In many cases, comparable results may be achieved in a less formal way at much less expense and the money saved would then be available for materials, trade books, and the like, having a proven value. One of the dangers of gadgetry, as it has been called, is that the uninformed teacher who recommends it and the principal who buys it may assume that it constitutes a reading program. The same may be said for a variety of materials that have been widely publicized in the way of packaged self-help kits, multilevel materials, skill texts, and drill books. Although any generalization concerning these materials as a group may not be completely valid about any single piece, the consensus is that these materials serve best as a *supplement* to an already sound program. Some of these materials or selected parts of some of them may be useful in helping a given individual with a particular problem, but they could hardly be considered the whole of a reading program. Reading requires a teacher and a prepackaged unit or self-help kit, though an aid, cannot be expected to replace a teacher who is sensitive to the individual needs of the learner.

Programed materials had limited use in the research reported over the last decade. Those studies that did report results, however, indicated that they were no more effective than any other type of instructional material. Possibly, too, future research will indicate what part this type of material may play in the total program and how it may be used most expeditiously.

Some helpful studies were reported on methods of increasing rate of comprehension. Several have indicated that pupils entering junior high school lack versatility in reading rate, although they respond to training in adjusting rate to purpose and material when such training is given. Several researchers reported on the value of such devices as rate pacers, tachistoscopes, and films with inconclusive results. In some cases, gains were temporary and the reader eventually regressed to a rate near his original. In other cases, gains were sustained over a longer period of time. That gains in rate may result from a method other than through the use of pacing devices was indicated in several studies. "Verbal set," instructing the student to read faster for a given purpose, proved to be as effective as the use of mechanical devices. As in other cases mentioned, it is evident that gadgets and other "hardware" are not essential to this aspect of the reading program.

Considerable work has been done in demonstrating the discrepancy between the measured readability level of certain textual materials and the reading levels of the students who are expected to use the materials. As secondary teachers have long surmised, many students in their classes find the prescribed text much too difficult to handle. In some cases, the difference between the readability of the book and the reading level of the class makes the value of the book questionable for the majority of the group. At least one researcher, however, raises the question as to whether a readability formula such as those frequently used are valid as measures of the readability of specialized types of materials.

The area of reading interests of children and young people is a popular one to research as was indicated in the number of studies reported over the last decade. Generalizations, such as those that follow, have been drawn from these studies.

1] The differences in reading interests are greater between groups of adolescents differentiated by sex than between groups of students of the same age differentiated by intelligence.

2] Students of the same age and grade in school, but varying in levels of intelligence, tend to read material having similar themes.

3] The kinds of books now being recommended on reading lists for young people are undergoing a change. Rather than the traditional "classics" that have long been suggested, more contemporary books having themes relevant to the interests of young people living in today's world are beginning to appear.

4] Book selections tend to be influenced more by the students' peers than by their teachers.

5] The reading interests and needs of a given adolescent may be considerably different from those indicated as being interesting to a particular group, age, or grade.

6] Although findings and conclusions dealing with television and its effect on reading are at variance, it does not appear to contribute in any perceptible way to either a greater quantity of reading or to a higher quality. In fact, more time is spent on television viewing than on reading. There is also some evidence to indicate that a higher level of school achievement is associated with less time spent on TV viewing. Whether television alone is responsible for this finding, or whether it operates as one in a cluster of factors is not revealed.

7] A great deal of the magazine reading that children do is of questionable quality.

8] Newspaper reading by young people is, in general, quite superficial and pedestrian, limited chiefly to local news, sports, columnists, and comics.

9] Poetry is not a popular area of interest with young people. How much of the reason lies in the poetry itself, and how much to the methods of prior and current teaching, is not known.

M

10] The reading of paperbacks is becoming increasingly popular.

11] Many students are finding the school library inadequate, either in number or type of books, to meet their reading interests and needs.

12] Both developmental and corrective reading teachers should carefully appraise their programs to make sure that reading interests are not being sacrificed for the development of reading skills.

The problem of securing trained personnel for the many positions that are available in reading on the secondary level is a critical one. In fact, this stands as one of the major deterrents to the organization of reading programs as well as to the discontinuance of programs already organized. One major study indicated that only a relatively small percentage of the teachers had had any formal training in reading procedures. Even those in leadership roles lacked adequate training. The responsibility for providing trained personnel must obviously rest with teacher training institutions to provide undergraduate and graduate instruction in both developmental and corrective procedures. In the meantime, the training gap must be filled through in-service programs, short term courses, workshops, and institutes. It must be recognized, however, that these are not substitutes for an organized sequence of courses leading to certification as a reading teacher or supervisor.

With government support, an unprecedented demand has arisen for trained remedial teachers in particular, although the need for them seems to be more clearly recognized on the elementary than the secondary level. Administrators desire that the training of these teachers should be specialized not only in remedial and corrective procedures, but also have sufficient breadth to enable them to work with other teachers in improving the quality of instruction in general.

There is a strong indication that those responsible for teacher training programs need to give careful thought to the content of courses and the nature of the programs now being offered. In some cases, the training has not been as effective as it should be. Evidently more attention has been given to theory than to practical aspects of dealing with students in classroom situations. It is extremely disturbing to find a report indicating that neither pre- nor post- in-service training courses appear to be effective in increasing an awareness of the need nor an understanding of the techniques to use in developing secondary level reading competencies. The implication seems clear that the need is not only for more trained teachers, but for better trained teachers as well.

REFERENCES

Aaron, I. E. Comparison of good and poor readers in fourth and eighth grades. *Journal of Educational Research,* 1960, *54,* 34-37. (2-6)

Adams, J. Q. A study of leisure-time reading preferences of ninth grade students. *High School Journal,* 1962, *46,* 67-72. (5-1)

Applebee, R. K. National study of high school English programs: a record of English teaching today. *English Journal,* 1966, *55,* 273-281. (1-1; 5-1)

Aukerman, R. C. Readability of secondary school literature textbooks: a first report. *English Journal,* 1965, *54,* 533-540. (4-6)

Balow, B. The long-term effect of remedial reading instruction. *The Reading Teacher,* 1965, *18,* 581-586. (3-4)

Baughman, M. D. Special reading instruction in Illinois junior high schools. *National Association of Secondary School Principals Bulletin,* 1960, *44,* 90-95. (3-1)

Belden, B. R., & Lee, W. D. Readability of biology textbooks and the reading ability of biology students. *School Science and Mathematics,* 1961, *61,* 689-693. (4-6)

Belden, B. R., & Lee, W. D. Textbook readability and reading ability of science students. *The Science Teacher,* 1962, *29,* 20-21, 23. (4-6)

Bennett, E. H. Multi-level reading of the novel. In J. A. Figurel (Ed.), Reading and inquiry. *Proceedings of the International Reading Association,* 1965, *10,* 76-79. (4-2)

Berkey, Sally. Reading and study-skills program in a high school district. *The Reading Teacher,* 1962, *16,* 102-103. (3-2)

Bernstein, Margery. Relationship between interest and reading comprehension. *Journal of Educational Research,* 1955, *49,* 283-288. (4-6)

Blakely, W. P. A study of seventh grade children's reading of comic books as related to certain other variables. *Journal of Genetic Psychology,* 1958, *93,* 291-301. (5-1)

Bormuth, J. R., & Aker, C. C. Is the tachistoscope a worthwhile teaching tool? *The Reading Teacher,* 1961, *14,* 172-176. (4-1)

Bottomly, F. An experiment with the Controlled Reader. *Journal of Educational Research,* 1961, *54,* 265-269. (4-1)

Boutwell, W. D. Can book reading be made a habit? In J. A. Figurel (Ed.), Improvement of reading through classroom practice. *Proceedings of the International Reading Association,* 1964, *9,* 180-182. (5-1)

Braam, L. Developing and measuring flexibility. *The Reading Teacher,* 1963, *16,* 247-251. (4-4)

Braam, L. S., & Roehm, Marilyn A. Subject-area teachers' familiarity with reading skills. *Journal of Developmental Reading,* 1964, *7,* 188-196. (6)

Brazziel, W. F., & Gordon, Margaret. Replication of some aspects of the Higher Horizons Program in a southern junior high school. *Journal of Negro Education,* 1963, *32,* 107-113. (3-4)

Burnett, R. W. Reading in the secondary school: issues and innovations. *Journal of Reading,* 1966, *9,* 322-328. (3-1)

Calvin, A. D., & Hanley, C. Exposure to programed learning material and reading comprehension. *Psychological Reports,* 1962, *10,* 538. (4-3)

Campbell, C. S. Leisure reading in the senior high schools of Alberta. *Alberta Journal of Educational Research,* 1964, *10,* 46-55. (5-1)

Carrillo, L. W. Methods of teaching reading in the junior high school. In J. A. Figurel (Ed.), Challenge and experiment in education. *Proceedings of the International Reading Association,* 1962, *7,* 47-49. (4-1)

Catterson, Jane H. Successful study skills programs. In H. L. Herber (Ed.), Developing study skills in secondary schools. *Perspectives in Reading No. 4,* International Reading Association, 1965, 156-169. (6)

Cawelti, G. L. Reading improvement programs in selected midwest high schools. *The Reading Teacher,* 1963, *17,* 36-37. (3-1)

Cawley, J. F., Chaffin, J., & Brunning, H. An evaluation of a junior high school reading program. *Journal of Reading,* 1965, *9,* 26-29. (4-1)

Chansky, N. M. Age, I.Q. and improvement of reading. *Journal of Educational Research,* 1963, *56,* 439. (2-1)

Clark, W. W. Boys and girls—are there significant ability and achievement differences? *Phi Delta Kappan,* 1959, *41,* 73-76. (2-2)

Cohn, Stella M. Organizing and administering public school reading clinics. In J. A. Figurel (Ed.), Reading and inquiry. *Proceedings of the International Reading Association,* 1965, *10,* 224-226. (3-4)

Cooper, Bernice. An analysis of the reading achievement of white and Negro pupils in certain public schools of Georgia. *School Review,* 1965, *72,* 462-471. (1-1)

Coston, Phyllis, & Merz, W. A team reading program for retarded readers. *Illinois School Research,* 1964, *1,* 24-27. (3-4)

Curry, J. F. The effect of reading instruction upon achievement in seventh grade arithmetic. *Indiana University Studies in Education,* 1955, *7,* 123-127. (Abstract) (1-2)

Curry, R. L., & Hughes, H. Relationships between measured and anticipated achievement in reading. *Junior College Journal,* 1961, *32,* 91-96. (1-1)

DeBoer, J. J. Through organizational practices. In J. A. Figurel (Ed.), New frontiers in reading. *Proceedings of the International Reading Association,* 1960, *5,* 36-40. (3-3)

Dolan, G. K. Counseling as an aid for delayed readers. *Journal of Reading,* 1964, *8,* 129-135. (3-4)

Dorney, W. P. Effect of reading instruction on modification of certain attitudes. In J. A. Figurel (Ed.), Improvement of reading through classroom practice. *Proceedings of the International Reading Association,* 1964, *9,* 171-173. (3-4)

Downing, Gertrude. Compensatory reading instruction for disadvantaged adolescents. In J. A. Figurel (Ed.), Improvement of reading through classroom practice. *Proceedings of the International Reading Association,* 1964, *9,* 167-168. (3-4)

Early, Margaret J. What does research tell the classroom teacher about the basic causes of reading disability and retardation? In A. Jewett (Ed.), Improving reading in the junior high school *(Bulletin No. 10)* U. S. Department of Health, Education, and Welfare, 1957. (3-4; 7)

Eichholz, G., & Barbe, R. An experiment in vocabulary development. *Educational Research Bulletin,* 1961, *40,* 1-7, 28. (4-5)

Entwisle, Doris R. Evaluations of study-skills courses: a review. *Journal of Educational Research,* 1960, *53,* 243-251. (3-6)

Fay, L. Improving the teaching of reading by teacher experimentation. *Bulletin of the School of Education,* Indiana University, 1958, *34* (5). (3-2)

Feinberg, M. R., Long, L., & Rosenheck, Viola. Results of a mandatory course for entering freshmen. *Journal of Developmental Reading,* 1962, *5,* 95-100. (3-2)

Forlano, G., & Wrightstone, J. W. Measuring the effectiveness of special reading instruction in selected vocational high schools. *High Points,* 1956, *38,* 31-36. (3-6)

Forseth, W. J. Does the study of geometry help improve reading ability? *Mathematics Teacher,* 1964, *44,* 12-13. (4-5)

Geake, R. R. Michigan high schools stress special reading program. *Michigan Education Journal,* 1961, *39,* 262-263. (3-1)

Geake, R. R. Predictors of reading rate improvement. In *The Inter-Institutional Seminar in Child Development,* Collected papers, 1962. Dearborn, Mich.: Edison Institute, 1963. Pp. 88-93. (4-4)

Glock, M., & Millman, J. Evaluation of a study skills program for above-average high school pupils. *Journal of Developmental Reading,* 1964, *7,* 283-289. (4-5)

Gold, L. A comparative study of individualized and group reading instruction with tenth grade underachievers in reading. In J. A. Figurel (Ed.), Improvement of reading through classroom practice. *Proceedings of the International Reading Association*, 1964, *9*, 102-104. (4-2)

Gowan, J. C., & Scheibel, R. W. The improvement of reading in gifted children. *Educational Administration and Supervision*, 1960, *46*, 35-40. (3-5)

Gray, W. S. Nature and scope of a sound reading program. In N. B. Henry (Ed.), Reading in the high school and college. *Yearbook of the National Society for the Study of Education*, 1948, *47*, 58. (3-1)

Grissom, L. V. Characteristics of successful reading programs. *English Journal*, 1961, *50*, 461-464, 477. (3-3)

Hage, D. S., & Stroud, J. B. Reading proficiency and intelligence scores, verbal and non-verbal. *Journal of Educational Research*, 1959, *52*, 258-262. (2-1)

Halfter, Irma T., & Douglass, Francis M. "Inadequate" college readers. *Journal of Developmental Reading*, 1958, *1* (4), 42-53. (3-2)

Harootunian, B. Intellectual abilities and reading achievement. *The Elementary School Journal*, 1966, *66*, 386-392. (2-1)

Heitzman, A. J., & Bloomer, R. H. The need for special remedial teachers. *Journal of Reading*, 1965, *9*, 30-33. (6)

Hemmerline, R. L., & Hurst, H. The effects of leisure time activities on school achievement. *California Journal of Educational Research*, 1961, *12*, 86-90. (5-2)

Henderson, E. H., Long, Barbara, & Ziller, R. C. Self-social constructs of achieving and nonachieving readers. *The Reading Teacher*, 1965, *19*, 114-118. (3-3)

Herber, H. L. An experiment in teaching reading through social studies content. In J. A. Figurel (Ed.), Changing concepts of reading instruction. *Proceedings of the International Reading Association*, 1961, *6*, 122-124. (3-2)

Herculane, Sister M. A survey of the flexibility of reading rates and techniques according to purpose. *Journal of Developmental Reading*, 1961, *4*, 207-210. (4-4)

Holmes, J. A., & Finley, C. J. Under- and over-age grade placements and school achievement. *Journal of Educational Psychology*, 1957, *48*, 447-456. (1-2)

Hough, O. M. A comparative study of the effects of limited and wide reading among eleventh grade students. *University of Kansas Bulletin of Education*, 1953, *7* (2), 49-55. (4-5)

Hoyt, Jeanne, & Blackmore, Dorothy. Fifty seventh graders: a comparison of their reading achievement and expected achievement in grades one through seven. *Journal of Educational Research*, 1960, *53*, 163-171. (2-7)

Hughes, Marie M., & Willis, P. Personal reading: a study of a seventh grade. In M. P. Douglass (Ed.), On becoming a reader. *Proceedings of the Claremont Reading Conference,* 1965, *29,* 90-101. (5-2)

Hunt, L. C., & Sheldon, W. D. Characteristics of the reading of a group of ninth-grade pupils. *School Review,* 1950, *58,* 348-353. (2-1)

Jacobson, M. D. Reading difficulty of physics and chemistry textbooks. *Educational and Psychological Measurement,* 1965, *25,* 449-457. (4-6)

Jackson, Jeanne, & Dizney, H. Intensive vocabulary training. *Journal of Developmental Reading,* 1963, *6,* 221-229. (4-5)

Jewett, A. What does research tell about the reading interests of junior high pupils? In A. Jewett (Ed.), Improving reading in the junior high school (*Bulletin No. 10*) U. S. Department of Health, Education, and Welfare, 1957. (5-1, 7)

Jungeblut, Ann, & Coleman, J. H. Reading content that interests seventh, eighth, and ninth grade students. *Journal of Educational Research,* 1965, *58,* 393-401. (5-1)

Karlin, R. Machines and reading: a review of research. *The Clearing House,* 1958, *32,* 349-352. (4-1)

Karlin, R. Library-book borrowing vs. library-book reading. *The Reading Teacher,* 1963, *16,* 77-81. (5-1)

Karlin, R. Methods of differentiating instruction at the senior high school level. In J. A. Figurel (Ed.), Improvement of reading through classroom practice. *Proceedings of the International Reading Association,* 1964, *9,* 60-62. (4-2)

Karlin, R. Characteristics of sound remedial reading instruction. In J. A. Figurel (Ed.), Reading and inquiry. *Proceedings of the International Reading Association,* 1965, *10,* 184-186. (3-4)

Kelly, F. J., North, J., & Zingle, H. The relation of the broken homes to subsequent school behaviors. *Alberta Journal of Educational Research,* 1965, *11,* 215-218. (2-5)

Krantz, L. L. The relationship of reading abilities and basic skills of the elementary school to success in the interpretation of the content materials in the high school. *Journal of Experimental Education,* 1957, *26,* 97-114. (1-2)

Krippner, S., & Herald, C. Reading disabilities among the academically talented. *The Gifted Child Quarterly,* 1964, *8,* 12-20. (3-4)

Leavell, U. W., & Wilson, Grace E. Guided free reading versus other methods in high school English. *Peabody Journal of Education,* 1956, *33,* 272-280. (4-1)

Littrell, J. H. Newspaper and magazine reading interests. *Reading Improvement,* 1965, *2,* 72-73. (5-1)

Livingston, H. An investigation of the effect of instruction in general semantics on critical reading ability. *California Journal of Educational Research,* 1965, *16,* 93-96. (2-9)

Louthan, V. Some systematic grammatical deletions and their effects on reading comprehension. *English Journal,* 1965, *54,* 295-299. (2-9)

Love, H. D. An experimental phonics program versus a controlled integral reading program. *Journal of Developmental Reading,* 1961, *4,* 280-282. (2-6)

Lovell, K., & Woolsey, M. E. Reading disability, non-verbal reasoning, and social class. *Educational Research,* 1964, *6,* 226-229. (2-5)

Marquis, Bettylee F. Developmental reading—New Albany High School. *Journal of Developmental Reading,* 1963, *7,* 58-62. (4-1)

Marshall, J. S. Comprehension and alleged readability of high school physics textbooks. *Science Education,* 1962, *46,* 335-346. (4-6)

Marvel, J. A. Acquisition and retention of reading performance on two response dimensions as related to "set" and tachistoscope training. *Journal of Educational Research,* 1959, *52,* 232-237. (4-4)

Mayhew, Jean B., & Weaver, C. H. Four methods of teaching reading improvement at the college level. *Journal of Developmental Reading,* 1960, *3,* 75-83. (4-1)

McCullough, Constance M. What does research reveal about practices in teaching reading? *English Journal,* 1957, *46,* 475-490. (3-1)

McDonald, A. S. What current research says about poor readers in high school and college. *Journal of Developmental Reading,* 1961, *4,* 184-186. (3-4)

McDonald, A. S. Intellectual characteristics of disabled readers at the high school and college levels. *Journal of Developmental Reading,* 1964, *7,* 97-101. (2-1)

McDonald, A. S. Research for the classroom: assessing the effects of reading programs. *Journal of Reading,* 1965, *8,* 417-421. (3-7)

McGinnis, Dorothy. The preparation and responsibility of secondary teachers in the field of reading. *The Reading Teacher,* 1961, *15,* 92-97, 101. (6)

Melton, H. B. Reading retention of eleventh-grade students. *Journal of Developmental Reading,* 1959, *2*(4), 26-33. (4-1)

Miller, W. R. Readability versus reading ability. *Journal of Educational Research,* 1962, *56,* 205-209. (4-6)

Millman, J. Reactions of selected teachers and pupils to three types of specialized reading equipment. In J. A. Figurel (Ed.), Reading as an intellectual activity. *Proceedings of the International Reading Association,* 1963, *8,* 137-139. (4-1)

Moe, J. H., & Nania, F. Reading deficiencies among able pupils. *Journal of Developmental Reading,* 1960, *3,* 11-26. (3-4)

Morrison, Ida E., & Perry, Ida F. Spelling and reading relationships with incidence of retardation and acceleration. *Journal of Educational Research,* 1959, *52,* 224-227. (2-7)

Muskopf, A. F., & Robinson, H. A. High school reading, 1965. *Journal of Reading,* 1966, *10,* 75-87. (7)

Nasman, J. G. A study of a reading improvement program in the junior high school. *Elementary English,* 1966, *43,* 383-385. (4-1)

Nason, H. M. The developmental program meets the challenge of potential school dropouts. In J. A. Figurel (Ed.), Reading and inquiry. *Proceedings of the International Reading Association,* 1965, *10,* 263-265. (3-4)

Niles, Olive. How much does a content teacher need to know about the teaching of reading? In J. A. Figurel (Ed.), Improvement of reading through classroom practice. *Proceedings of the International Reading Association,* 1964, *9,* 41-42. (3-2)

Noall, Mabel S. Automatic teaching of reading skills in high school. *Journal of Education,* 1961, *142,* entire issue. (4-2)

O'Donnell, R. Awareness of grammatical structure and reading comprehension. *High School Journal,* 1962, *45,* 184-188. (2-9)

Otto, W. Sibling patterns of good and poor readers. *Psychology in the Schools,* 1965, *1,* 53-57. (2-5)

Patterson, W. G. The role of the classroom teacher in helping students improve in reading. *Journal of Developmental Reading,* 1958, *1* (4), 31-41. (6)

Pauk, W. J. Are present reading tests valid for both boys and girls? *Journal of Educational Research,* 1960, *53,* 279-280. (2-2)

Paulo, W. E. Improving reading in junior high schools. In J. A. Figurel (Ed.), Challenge and experiment in reading. *Proceedings of the International Reading Association,* 1962, *7,* 164-166. (2-3)

Penty, Ruth. *Reading ability and high school dropouts.* New York: Bureau of Publications, Teachers College, Columbia University, 1956. (2-5)

Peyton, J., & Below, R. The need for reading instruction in Kentucky high schools. *School Service Report,* 1965, *6,* 2-7. (1-1)

Plattor, Emma E., Plattor, S. D., Sherwood, E., & Sherwood, Sylvia. Relationship between reading retardation and the measurement of intelligence. *Personnel and Guidance Journal,* 1959, *38,* 49-51. (2-1)

Plessas, J. P. Reading abilities of high and low auders. *The Elementary School Journal,* 1963, *63,* 223-226. (2-8)

Ramsey, W. Z. An experiment in teaching in high school English classes. *English Journal,* 1957, *46,* 495-500. (3-2)

Ramsey, W. Z. An analysis of variables predictive of reading growth. *Journal of Developmental Reading.* 1960, *3,* 158-164. (2-6)

Ramsey, W. Z. The Kentucky reading study. *The Reading Teacher,* 1963, *16,* 178-181. (1-1)

Rasmussen, G. R., & Dunne, H. W. A longitudinal evaluation of a junior high school corrective reading program. *The Reading Teacher,* 1962, *16,* 95-101. (3-4)

Raygor, A. L., & Summers, E. G. A comparison of two methods of teaching reading comprehension to high school and college students. In R. C. Staiger & C. Y. Melton (Eds.), New developments in programs and procedures for college-adult reading. *Twelfth Yearbook of the National Reading Conference*, 1963, *12*, 118-123. (4-3)

Reeves, Ruth E. An experiment in improving reading in the junior high school. *English Journal*, 1958, *47*, 15-20. (3-2)

Robinson, Helen M. Qualifications for teachers of remedial reading. *The School Review*, 1955, *63*, 334-337. (6)

Robinson, Helen M., & Smith, Helen K. Reading clinic clients—ten years after. *The Elementary School Journal*, 1962, *63*, 22-27. (3-4)

Robinson, H. A., & Dramer, D. S. High school reading—1958. *Journal of Developmental Reading*, 1960a, *3*, 94-105. (7)

Robinson, H. A., & Dramer, D. S. High school reading—1959. *Journal of Developmental Reading*, 1960b, *4*, 25-40. (7)

Robinson, H. A., & Dramer, D. S. High school reading—1960. *Journal of Developmental Reading*, 1961, *5*, 3-14. (7)

Robinson, H. A., & Muskopf, A. F. High school reading—1961. *Journal of Developmental Reading*, 1962, *6*, 26-40. (7)

Robinson, H. A., & Muskopf, A. F. High school reading—1962. *Journal of Developmental Reading*, 1963, *7*, 7-23. (7)

Robinson, H. A., & Muskopf, A. F. High school reading—1963. *Journal of Reading*, 1964, *8*, 85-96. (7)

Robinson, H. A., & Muskopf, A. F. High school reading—1964. *Journal of Reading*, 1965, *9*, 75-92. (7)

Roman, M. *Reaching delinquents through reading*. Springfield, Ill.: Charles Thomas, 1957. (3-4)

Ross, Joan B. Remedial reading techniques a high school teacher can use. In J. A. Figurel (Ed.), Reading and inquiry. *Proceedings of the International Reading Association*, 1965, *10*, 182-184. (3-2)

Saine, Lynette. General principles underlying good remedial instruction. In J. A. Figurel (Ed.), Improvement of reading through classroom practice. *Proceedings of the International Reading Association*, 1964, *9*, 149-150. (3-4)

Scarborough, G. C., Bruns, R. F., & Frazier, A. Improvement of reading through ability level assignments. *School Review*, 1957, *65*, 474-480. (3-2)

Scarborough, Olive R., Hindsman, E., & Hanna, Geneva. Anxiety level and performance in school subjects. *Psychological Reports*, 1961, *9*, 425-430. (2-3)

Schneyer, J. W. Significant reading research at the secondary school level. In M. Early (Ed.), Reading instruction in secondary schools. *Perspectives in Reading No. 2*, International Reading Association, 1964, 131-149. (7)

Schramm, L. J., Lyle, J., & Parker, E. Patterns in reading of newspapers. *Journalism Quarterly*, 1960, *37*, 35-40. (5-1)

Scott, L. F. Television and school achievement. *Phi Delta Kappan,* 1958, *38,* 25-28. (5-2)

Sekerak, B. M. Mass communication media, reading comprehension and intelligence. *Audio-Visual Communication Review,* 1957, *5* 468-475. (5-2)

Shores, J. H. Reading interests and informational needs of high school students. *The Reading Teacher,* 1964, *17,* 536-544. (5-1)

Simmons, J. S. Who is responsible? The need for qualified supervision of the reading program. *English Journal,* 1963a, *52,* 86-88, 93. (6)

Simmons, J. S. The scope of the reading program for secondary schools. *The Reading Teacher,* 1963b, *17,* 31-35. (3-1)

Sinks, Naomi B., & Powell, M. Sex and intelligence as factors in achievement in reading in grades four through eight. *Journal of Genetic Psychology,* 1965, *106,* 67-69. (2-2)

Sizemore, R. Reading interests in junior high school. *Education,* 1963, *83,* 473-479. (5-2)

Smith, Elizabeth (chairman). A reading experiment: the ninth year committee for the Walton High School. *High Points,* 1957, *39,* 12-31. (3-2)

Smith, K. J. A survey of seventh and eighth grade reading programs in selected AAA Missouri public schools. Unpublished doctoral dissertation, University of Missouri, 1963. (3-1)

Smith, E. W. A high school program for the bilingual. In J. A. Figurel (Ed.), Reading and inquiry. *Proceedings of the International Reading Association,* 1965, *10,* 280-282. (3-6)

Smith, Helen K. Identification of factors that inhibit progress in reading. In J. A. Figurel (Ed.), Reading and inquiry. *Proceedings of the International Reading Association,* 1965, *10,* 200-202. (3-4)

Smith, Helen K. *Instruction of high school students in reading for different purposes.* (Report of Cooperative Research Project No. 1714) Washington, D. C.: United States Department of Health, Education, and Welfare, 1966. (2-4)

Soares, A. T. Salient elements of recreational reading of junior high school students. *Elementary English,* 1963, *40,* 843-845. (5-2)

Sonenberg, Charlotte, & Glass, G. G. Reading and speech: an incident and treatment study. *The Reading Teacher,* 1965, *19,* 197-201. (3-6)

Spache, G. D. A rationale for mechanical methods of improving reading. In O. S. Causey (Ed.), Significant elements in college and adult reading improvement. *Seventh Yearbook of the National Reading Conference for Colleges and Adults.* Fort Worth, Texas: Texas Christian University, 1958, *7,* 115-132. (4-1)

Spaights, E. Accuracy of self-estimation of junior high school students. *Journal of Educational Research,* 1965, *58,* 416-419. (2-1)

Sparks, J. E. Experience needs of capable students. In J. A. Figurel

(Ed.), Reading and inquiry. *Proceedings of the International Reading Association*, 1965, *10*, 57-59. (3-5)

Squire, J. R. Reading in American high schools today. In J. A. Figurel (Ed.), Reading and inquiry. *Proceedings of the International Reading Association*, 1965, *10*, 468-472. (3-2)

Staiger, R. C. Medicine for reading improvement. *Journal of Developmental Reading*, 1961, *5*, 48-51. (2-10)

Stanchfield, Jo M. Boys' reading interests as revealed through personal reading conferences. *The Reading Teacher*, 1962, *16*, 41-44. (5-2)

Stanchfield, Jo M. The reading specialist in the junior high school. In J. A. Figurel (Ed.), Improvement of reading through classroom practice. *Proceedings of the International Reading Association*, 1964, *9*, 55-57. (6)

Starkman, S. S. The effect of training in reading on performance on a scholastic ability test. *Psychology in the Schools*, 1965, *2*, 137-140. (3-5)

Steward, Janice S. Content and readership of teen magazines. *Journalism Quarterly*, 1964, *41*, 580-583. (5-1)

Strang, Ruth. Scope of adolescent interests. *Education*, 1963, *83*, 463-467. (5-1)

Strang, Ruth, & Rogers, Charlotte. How do students read a short story. English Journal, 1965, *54*, 819-823, 829. (2-6)

Strom, Ingrid M. Does knowledge of grammar improve reading? *English Journal*, 1956, *45*, 129-133. (2-9)

Summers, E. G. Doctoral dissertation research in elementary and secondary reading: 1958, 1959, and 1960. *Journal of Developmental Reading*, 1962, *5*, 232-244. (7)

Summers, E. G. Doctoral dissertation research in reading reported for 1961—Parts I, II. *Journal of Developmental Reading*, 1963, *6*, 87-105, 156-175. (7)

Summers, E. G. Doctoral dissertation research in reading reported for 1962. *Journal of Developmental Reading*, 1964a, *7*, 223-260. (7)

Summers, E. G. Review of recent research in reading in content subjects at the junior high school level. In J. A. Figurel (Ed.), Improvement of reading through classroom practice. *Proceedings of the International Reading Association*, 1964b, *9*, 38-41. (7)

Summers, E. G., & Hubrig, Billie. Doctoral dissertation research in reading reported in 1963. *Journal of Reading*, 1966a, *9*, 295-321. (7)

Summers, E. G., & Hubrig, Billie. Doctoral dissertation research in reading reported in 1963. *Journal of Reading*, 1966b, *9*, 386-401. (7)

Summers, E. G., & Laffey, J. Doctoral dissertation research in reading for 1964, Part I. *Journal of Reading*, 1966c, *10*, 169-184. (7)

Summers, E. G., & Laffey, J. Doctoral dissertation research in reading for 1964, Part II. *Journal of Reading,* 1967a, *10,* 243-257. (7)

Summers, E. G., & Laffey, J. Doctoral dissertation research in reading for 1964 Part III. *Journal of Reading,* 1967b, *10,* 305-327. (7)

Theophemia, Sister Mary. Testing flexibility in reading. In J. A. Figurel (Ed.), Challenge and experiment in reading. *Proceedings of the International Reading Association,* 1962, *7,* 138-139. (4-4)

Thornton, R. D. Developmental reading in Texas secondary schools, January, 1957. *Texas Study of Secondary Education, Research Study, No. 23.* (Mrs. Mae Cowan, Sec't.) 2207 Nolen St., Austin, Texas. (1-1)

Thornton, C. M. Two high school reading improvement programs. *Journal of Developmental Reading,* 1960, *3,* 115-122. (4-1)

Tormey, Mary K., & Patterson, W. G. Developmental reading and student evaluation. *Journal of Developmental Reading,* 1959, *2*(2), 30-43. (3-2)

Traxler, A. E. What does research suggest about ways to improve reading instruction? In A. Jewett (Ed.), Improving reading in the junior high school (*Bulletin No. 10*) U. S. Department of Health, Education, and Welfare, 1957. (7)

Traxler, A. E. Some aspects of the vocabulary of independent secondary school pupils. *Educational Records Bulletin,* 1965, *87,* 44-49. (2-8)

Troxel, V. The effects of purpose on the reading of expository materials in grade eight. *Journal of Educational Research,* 1962, *55,* 221-227. (2-4)

Tufvander, E. A., & Zintz, M. V. A follow-up study of pupils with reading difficulties. *The Elementary School Journal,* 1957, *58,* 152-156. (3-4)

Turner, Carla S. Remedial reading pays dividends in the junior high school. *English Journal,* 1959, *48,* 136-140, 153. (3-4)

Vaughan, Beryl I. Reading interests of eighth-grade students. *Journal of Developmental Reading,* 1963, *6,* 149-155. (5-1)

Walker, F. R. Evaluation of three methods of teaching reading, seventh grade. *Journal of Educational Research,* 1961, *54,* 356-358. (4-2)

Warren, Mary B. The Massapequa Junior High School reading program. *Journal of Developmental Reading,* 1962, *5,* 245-255. (4-1)

Watson, R. L. Early identification of high school dropouts. In J. A. Figurel (Ed.), Reading and inquiry. *Proceedings of the International Reading Association,* 1965, *10,* 265-267. (2-5)

Weaver, E. K., & Black, E. The relation of science fiction reading to reasoning ability. *Science Education,* 1965, *49,* 293-296. (4-5)

Whitman, R. S. Significant reading experiences of superior English students. *Illinois English Bulletin,* 1964, *51,* 1-24. (5-1)

Witty, P. A study of pupils' interests, grades 9, 10, 11, 12. *Education,* 1961, *82,* 39-45, 100-110, 169-174. (5-1)

Witty, P., & Melis, L. A 1964 study of TV: comparison and comments. *Elementary English*, 1965, *42*, 134-141. (5-2)

Woolcock, C. W. Guiding the reading of superior students in a special high school. *The Reading Teacher*, 1963, *16*, 448-451. (5-1)

Young, C. A qualitative analysis of reading achievement in Edmonton schools. *Alberta Journal of Educational Research*, 1956, *2*, 135-150. (1-1)

Zamchick, D. Paperback buying patterns. *English Journal*, 1960, *49*, 336-340. (5-1)